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Report Number: 214-TRC-03-001

Safety Compliance Testing For FMVSS 214

Side Impact Protection

**Mazda Motor Corporation
2003 Mazda Protegé 5 4-door Hatchback**

NHTSA Number: C35402

Transportation Research Center Inc.

10820 State Route 347

P. O. Box B-67

East Liberty, OH 43319



February 27, 2003

Final Report

**U. S. Department Of Transportation
National Highway Traffic Safety Administration
Enforcement**

Office of Vehicle Safety Compliance

400 Seventh Street, S. W.

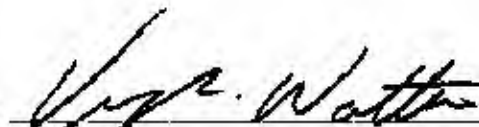
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Washington, DC 20590

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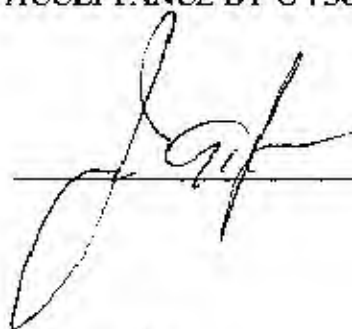
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16. Abstract <p>This 48/24 km/h 90° Impact (Moving Deformable Barrier) Compliance Test was conducted on the subject vehicle, a 2003 Mazda Protegé 5 4-door hatchback in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-214D-06 to determine FMVSS 214 Side Impact Protection compliance. This test was conducted by Transportation Research Center Inc. in East Liberty, Ohio, on February 12, 2003.</p> <p>The impact velocity of the Moving Deformable Barrier (MDB) was 52.9 km/h, and the ambient temperature at the struck (driver's side) side of the target vehicle at the time of impact was 21° C. The target vehicle's post-test maximum crush was undetermined.</p> <p>The test or target vehicle's performance is given below:</p> <table border="1"> <thead> <tr> <th></th> <th>Front SID</th> <th></th> <th>Rear SID</th> <th></th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib Acceleration:</td> <td>51.9</td> <td>g's</td> <td>45.6</td> <td>g's</td> </tr> <tr> <td>Left Lower Rib Acceleration:</td> <td>50.3</td> <td>g's</td> <td>49.1</td> <td>g's</td> </tr> <tr> <td>Lower Spine Acceleration:</td> <td>66.5</td> <td>g's</td> <td>53.7</td> <td>g's</td> </tr> <tr> <td>Thoracic Trauma Index, (TTI):</td> <td>59.2</td> <td>g's</td> <td>51.4</td> <td>g's</td> </tr> <tr> <td>Pelvis Acceleration (PEV):</td> <td>64.5</td> <td>g's</td> <td>74.0</td> <td>g's</td> </tr> </tbody> </table> <p>The two doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during side impact event.</p>				Front SID		Rear SID		Left Upper Rib Acceleration:	51.9	g's	45.6	g's	Left Lower Rib Acceleration:	50.3	g's	49.1	g's	Lower Spine Acceleration:	66.5	g's	53.7	g's	Thoracic Trauma Index, (TTI):	59.2	g's	51.4	g's	Pelvis Acceleration (PEV):	64.5	g's	74.0	g's
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17. Key Words Compliance Testing Side Impact Protection FMVSS 214 Side Impact Dummy (SID)	18. Distribution Statement Copies of this report are available from: NHTSA Technical Information Services (TIS) Room 5108 (NPO-230), 400 Seventh Street, S.W. Washington, DC 20590 Telephone No. (202) 366-4946 Attn: Robert Hornicle																															
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Section 1

Purpose and Test Procedure

This side impact test is part of the FMVSS 214 Side Impact Protection Compliance Test Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-02-D-11114. The purpose of this test was to evaluate side impact protection in a 2003 Mazda Protegé 5 4-door hatchback. The test was conducted in accordance with the Office of Vehicle Safety Compliance's Laboratory Test Procedure (TP-214D-06, dated July 2001).

Section 2

Summary of Side Impact Test

A 2003 Mazda Protegé 5 4-door hatchback was impacted on the driver's side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the monorail at a velocity of 52.9 km/h (32.9 mph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by Transportation Research Center Inc. in East Liberty, Ohio on February 12, 2003. Pre-test and post-test photographs of the test vehicle, the moving deformable barrier (MDB), and the side impact dummies (SIDs) are included in Appendix A.

Two restrained Side Impact Dummies (SIDs) were placed in the driver (Pos. #1) and left rear (Pos. #4) designated seating positions according to the instructions specified in the OVSC Side Impact Laboratory Test Procedure (TP-214D-06, dated July 2001). Both SIDs were certified prior to this test. The side impact test was documented by one real-time camera and 9 high-speed cameras. Camera locations and other pertinent camera information are included in this report.

The SIDs were instrumented with the following accelerometers:

1. Left Upper Rib (LUR) uniaxial and redundant accelerometer (Y-direction)
2. Left Lower Rib (LLR) uniaxial and redundant accelerometer (Y-direction)
3. Lower Thoracic Spine (T₁₂) uniaxial and redundant accelerometer (Y-direction)
4. Pelvic (PEV) section uniaxial and redundant accelerometer (Y-direction)

A summary of the side impact dummy (SID) configuration and verification test data can be found in Appendix C. A total of 42 channels of data were recorded. Appendix B contains the vehicle, MDB, and dummy response data traces.

The following table summarizes the results of the test.

Injury Criteria	Front SID	Rear SID
TTI (g)	59.2	51.4
PEV (g)	64.5	74.0

Data Acquisition Explanations

The target vehicle's left side sill at front seat Y-axis acceleration data channel, LFSYG1, recorded questionable data throughout the event. This also affected the integrated velocity and displacement data channels.

The target vehicle's left front door upper centerline Y-axis acceleration data channel, LFUYG1, went open at approximately 22 milliseconds and recorded no valid data after that. This also affected the integrated velocity and displacement data channels.

The target vehicle's left middle B-post Y-axis acceleration data channel, LMBYG1, exceeded its full-scale value at approximately 50 milliseconds and recorded no valid data after that. This also affected the integrated velocity data channel.

The target vehicle's left middle A-post Y-axis acceleration data channel, LMAYG1, exceeded its full-scale value at approximately 22 milliseconds and recorded no valid data after that. This also affected the integrated velocity data channel.

Section 3

Summary of Test Results

Data Sheet 1

General Test Vehicle Parameter Data

Test Vehicle Information:

Vehicle Year/Make/Model: 2003 Mazda Protegé 5
Vehicle Body Style/Color: 4-door hatchback/Sunlight Silver Metallic
VIN: JM1BJ245931111149
Vehicle NHTSA No.: C35402 Build Date: 07/03
Engine Data: 4 Cylinders; CID; 2 Liters; cc
Placement: - Longitudinal; or X Lateral; or - Horizontal
Transmission: 5 Speed; X Manual; - Automatic; X O/D
Final Drive: - RWD; X FWD; - Four-Wheel Drive
Odometer Reading: 86 km
Options: X A/C; X Power steering; X Pwr. brakes; X Power windows

Data From Vehicle's Tire Placard:

Tire Pressure (at capacity)* 220 kPa Front; 220 kPa Rear
Recommended Tire Size: P195/50R16 83V
Tires on Test Vehicle: P195/50R16 Manufacturer: Dunlop Sport 5000

Vehicle Capacity Data:

Number of Occupants: 2 Front; 3 Rear; 0 3rd seat; 5 Total
Type of Front Seats: X Bucket; - Bench; - Split bench
Type of Front Seat Back: - Fixed; X Adjustable with X Lever or - Knob
Vehicle Max. Capacity Loading = 385.0 kg (A)
No. of Occupants x 68.04 kg. = 340.2 kg (B)
Vehicle Cargo Capacity (A-B) = 44.8 kg

Test Vehicle Delivered Weight With Maximum Fluids:

Left Front	=	<u>369.5</u> kg	Left Rear	=	<u>258.0</u> kg
Right Front	=	<u>377.5</u> kg	Right Rear	=	<u>248.5</u> kg
Total Front	=	<u>747.0</u> kg	Total Rear	=	<u>506.5</u> kg
Front % of Total Weight	=	<u>59.6</u> %	Rear % of Total Weight	=	<u>40.4</u> %
Total Weight	=	<u>1253.5</u> kg			

* Tire pressure used in test.

Data Sheet 1 (continued)

General Test Vehicle Parameter Data

Calculation Of Vehicle's Target Test Weight:

Total Test Vehicle Delivered Weight With Max. Fluids = 1253.5 kg (A)
Maximum Cargo Carrying Capacity of Test Vehicle = 44.8 kg (B)
Weight of Instrumented Side Impact Dummies (2 X 84.0 kg) = 168.0 kg (C)
Test Vehicle Target Weight: = 1466.3 kg (A+B+C)

Fully Loaded Test Vehicle (UDW + 2 SID(s) + Cargo):

Left Front	=	<u>428.0</u> kg	Left Rear	=	<u>345.0</u> kg
Right Front	=	<u>384.0</u> kg	Right Rear	=	<u>309.5</u> kg
Total Front	=	<u>812.0</u> kg	Total Rear	=	<u>654.5</u> kg
Front % of Total Weight	=	<u>55.4</u> %	Rear % of Total Weight	=	<u>44.6</u> %
Total Weight	=	<u>1466.5</u> kg			

As Tested Weight of Test Vehicle (2 SID(s) + Cargo + Equipment & Instrumentation):

Left Front	=	<u>407.8</u> kg	Left Rear	=	<u>332.2</u> kg
Right Front	=	<u>396.6</u> kg	Right Rear	=	<u>325.4</u> kg
Total Front	=	<u>804.4</u> kg	Total Rear	=	<u>657.6</u> kg
Front % of Total Weight	=	<u>55.0</u> %	Rear % of Total Weight	=	<u>45.0</u> %
Total Weight	=	<u>1462.0</u> kg			

Test Vehicle Attitude (all dimensions in millimeters):

As Delivered	Fully Loaded	Ready For Test
Right Front <u>655</u>	Right Front <u>646</u>	Right Front <u>636</u>
Left Front <u>652</u>	Left Front <u>628</u>	Left Front <u>631</u>
Right Rear <u>660</u>	Right Rear <u>624</u>	Right Rear <u>609</u>
Left Rear <u>658</u>	Left Rear <u>608</u>	Left Rear <u>608</u>

Test Vehicle Wheelbase: 2610 mm

C.G. = 1174.0 mm rearward of front wheel centerline

Total Vehicle Length:

Right Side = 4192 mm
Left Side = 4184 mm
Centerline = 4308 mm

Data Sheet 1 (continued)

General Test Vehicle Parameter Data

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

Front Seat Cushion Placement: Mid (8th latch position rearward of most forward position)

Total Length of Fore/Aft Adjustment Travel: 240 mm

Total Number of Adjustment Positions or Detents: 17

Front Seat Back Adjustment Position: The back was adjusted to the 5th latch rearward of the first detent.

Seat Back Torso Angle: 14.5 degrees

Second Position Seat Placement: Not adjustable

Total Length Of Fore/Aft Adjustment Travel: N/A mm

Seat Back Adjustment Position: Not adjustable

Adjustable Steering Column Position: Mid (67.6° angle within tilt range of 70.3° - 65.0°)

Window Positions:

Right Front: Open

Right Rear: Open

Left Front: Closed

Left Rear: Closed

Note: Windows will be in closed position on struck side of test vehicle and in open position on opposite side.

Amount of Stoddard Solvent In Fuel Tank:

55.0 liters (fuel tank usable capacity)

52.2 liters used in test (92% - 94% of fuel tank usable capacity)

Location of Impact Point On Test Vehicle Side To Be Impacted:

Wheelbase = 2610 millimeters

Intended impact point is 365 millimeters rearward of front axle centerline

(which is 940 millimeters forward of the wheelbase midpoint)

Actual Impact Point is 372 millimeters rearward of front axle centerline

Remarks:

Data Sheet 2

Test Vehicle Summary of Results

Vehicle Year/Make/Model: 2003/Mazda/Protege 5 Body Style: 4-door hatchback
VIN: JM1BJ24593111114 Build Date: 07/02
NHTSA No.: C35402 Test Date: 2/12/03
Vehicle Overall Length = 4308 mm Overall Width = 1687 mm

Vehicle Test Weight (Pre-Test):

Left Front	=	<u>407.8</u>	kg	Left Rear	=	<u>332.2</u>	kg
Right Front	=	<u>396.6</u>	kg	Right Rear	=	<u>325.4</u>	kg
Total Front	=	<u>804.4</u>	kg	Total Rear	=	<u>657.6</u>	kg
Total Weight	=	<u>1462.0</u>	kg				
Wheelbase	=	<u>2610</u>	mm				

Longitudinal C.G. From Center Of Front Axle = 1174 mm

Impact Angle With Respect To Impactor = 270 degrees

Impact Point:

Actual Impact Point is 7 mm right of nominal impact ref. line (Lateral)
Actual Impact Point is 1 mm up from nominal impact point (Vertical)

Maximum Exterior Static Crush:¹

1. Level 1 (<u>218</u>	mm above ground)	=	<u>---</u>	mm
2. Level 2 (<u>479</u>	mm above ground)	=	<u>---</u>	mm
3. Level 3 (<u>617</u>	mm above ground)	=	<u>---</u>	mm
4. Level 4 (<u>865</u>	mm above ground)	=	<u>---</u>	mm
5. Level 5 (<u>1359</u>	mm above ground)	=	<u>---</u>	mm

Maximum Post-Test Intrusion = --- mm

Occupants:

	<u>Front Passenger</u>	<u>Rear Passenger</u>
Dummy Identification	<u>SID 065</u>	<u>SID 066</u>
Restraints Used	<u>3-pt seat belt</u>	<u>3-pt seat belt</u>

Instrumentation:

Number of Vehicle Data Channels: = 26
Number of Cameras: Onboard = 3 Offboard = 7 Total = 10

¹ Exterior crush data not available because struck side doors were opened after the test before post-test measurements were taken.

Data Sheet 3

Moving Deformable Barrier(MDB) Summary

MDB Face Manufacturer And Serial Number:

Plascore, S/N: 049A0602-2, 058B0502

Position Of Impactor (MDB) On Monorail:

Crabbed 27° to the Left

MDB Specifications:

Overall Width of Framework Carriage = 1251 mm
Overall Length of MDB (Incl. honeycomb impact face) = 4014 mm
Wheelbase of Framework Carriage = 2591 mm
Track of Framework Carriage (Front & Rear) = 1881 mm
C.G. Location Rearward of Front Axle = 1115.0 mm

MDB Weight:

Left Front	=	<u>408.8</u>	kg	Left Rear	=	<u>275.0</u>	kg
Right Front	=	<u>368.8</u>	kg	Right Rear	=	<u>312.8</u>	kg
Total Front	=	<u>777.6</u>	kg	Total Rear	=	<u>587.8</u>	kg
Total MDB Weight	=	<u>1365.4</u>	kg				
Impact Angle (MDB C/L to Target Vehicle C/L) = <u>90</u> degrees							
Impact Speed = <u>52.9</u> km/h							

Maximum Static Crush of Honeycomb Impact Face:

1. Row A at Center of Bumper Level	=	<u>78</u>	millimeters
2. Row B at Top of Bumper Level	=	<u>66</u>	millimeters
3. Row C at Mid Level	=	<u>100</u>	millimeters
4. Row D at Top of Stack Level	=	<u>130</u>	millimeters

Instrumentation:

Number of MDB Data Channels = 5

Data Sheet 4

Post-Test Observations

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

Visible Dummy Contact Points:

	<u>Left Front SID</u>	<u>Left Rear SID</u>
Head:	<u>Left shoulder, head restraint</u>	<u>C-pillar, head restraint</u>
Upper Torso:	<u>Door</u>	<u>Door</u>
Lower Torso:	<u>Door</u>	<u>Door</u>
Left Knee:	<u>Door</u>	<u>Door</u>
Right Knee:	<u>Left knee</u>	<u>Left knee</u>

Door Opening:

	<u>Left Side</u>	<u>Right Side</u>
Front:	<u>Jammed shut & latched</u>	<u>Latched & operational</u>
Rear:	<u>Jammed shut & latched</u>	<u>Latched & operational</u>

MDB Distance From Target Impact Point:

Vertical: 1 mm up from target

Horizontal: 7 mm right from target

Arm Rest Locations:

Front: 217 mm below the bottom of the window

Rear: 237 mm below the bottom of the window

Seat Movement:

Front: No seat track movement; seat back bent inboard

Rear: No seat track movement; seat back bent inboard

Glazing Damage:

Windshield: Broken on driver's side

Window: Both left side door windows broke

Pillar Separation: No

Sill Separation: No

Other Notable Impact Effects:

Section 4

Occupant and Vehicle Information

Data Sheet 5

SID Instrumentation Data

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

TEST NUMBER: 030212-1

DRIVER DUMMY SERIAL NUMBER: 065

POSITIVE
DIRECTION

NEGATIVE
DIRECTION

LEFT UPPER RIB ACCELERATION

LATERAL (P)	51.9 g	@ 35.6 ms	18.2 g	@ 69.4 ms
LATERAL (R)	51.7 g	@ 35.6 ms	18.4 g	@ 69.4 ms

LEFT LOWER RIB ACCELERATION

LATERAL (P)	50.3 g	@ 30.0 ms	15.5 g	@ 70.0 ms
LATERAL (R)	50.5 g	@ 30.0 ms	15.9 g	@ 70.0 ms
TTI d (P)	59.2			
TTI d (R)	58.5			

LOWER SPINE ACCELERATION

LATERAL (P)	66.5 g	@ 35.0 ms	14.2 g	@ 63.1 ms
LATERAL (R)	65.3 g	@ 34.4 ms	14.1 g	@ 63.1 ms

PELVIS ACCELERATION

LATERAL (P)	64.5 g	@ 31.3 ms	9.1 g	@ 52.5 ms
LATERAL (R)	64.5 g	@ 31.3 ms	9.1 g	@ 52.5 ms

POSITIVE DIRECTION

LONGITUDINAL: FORWARD
LATERAL: RIGHTWARD
VERTICAL: DOWNWARD

NEGATIVE DIRECTION

LONGITUDINAL: REARWARD
LATERAL: LEFTWARD
VERTICAL: UPWARD

Data Sheet 5 (Continued)

SID Instrumentation Data

Vehicle: 2003 Mazda Protegé S 4-door hatchback

NHTSA No.: C35402

TEST NUMBER: 030212-1

PASSENGER DUMMY SERIAL NUMBER: 066

POSITIVE
DIRECTION

NEGATIVE
DIRECTION

LEFT UPPER RIB ACCELERATION

LATERAL (P)	45.6 g	@ 42.5 ms	6.2 g	@ 118.8 ms
LATERAL (R)	44.1 g	@ 42.5 ms	7.1 g	@ 118.8 ms

LEFT LOWER RIB ACCELERATION

LATERAL (P)	49.1 g	@ 43.1 ms	9.4 g	@ 118.1 ms
LATERAL (R)	47.4 g	@ 43.1 ms	9.7 g	@ 118.1 ms
TTI d (P)	51.4			
TTI d (R)	50.4			

LOWER SPINE ACCELERATION

LATERAL (P)	53.7 g	@ 49.4 ms	8.0 g	@ 122.5 ms
LATERAL (R)	53.3 g	@ 49.4 ms	8.3 g	@ 122.5 ms

PELVIS ACCELERATION

LATERAL (P)	74.0 g	@ 45.6 ms	5.3 g	@ 103.1 ms
LATERAL (R)	73.5 g	@ 45.6 ms	5.3 g	@ 103.1 ms

POSITIVE DIRECTION

LONGITUDINAL: FORWARD
LATERAL: RIGHTWARD
VERTICAL: DOWNWARD

NEGATIVE DIRECTION

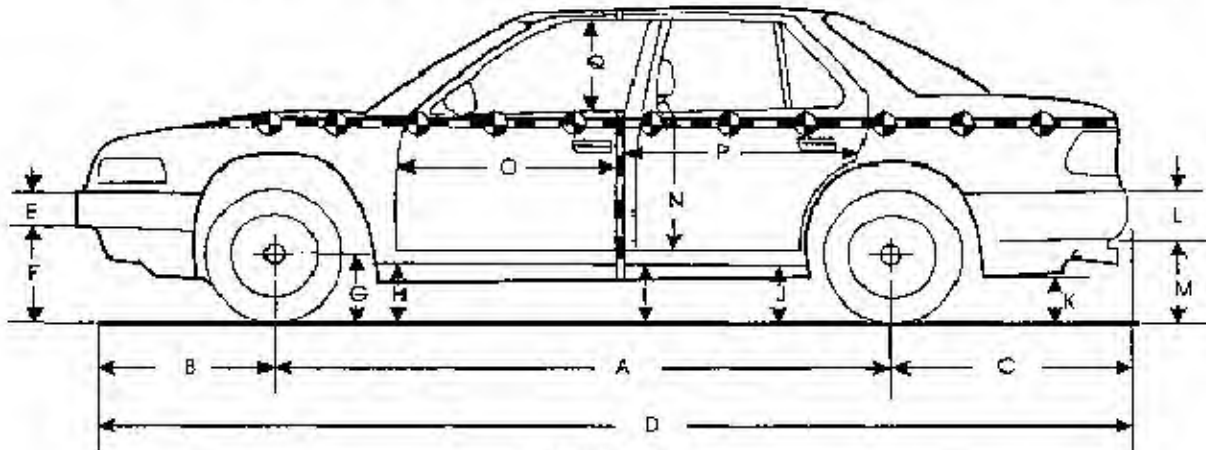
LONGITUDINAL: REARWARD
LATERAL: LEFTWARD
VERTICAL: UPWARD

Data Sheet 6

Vehicle Pre-Test And Post-Test Measurements

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402



Left Side View

Note: All dimensions are in millimeters with tolerance of ± 3 mm

	Pre-Test (as delivered)	Pre-Test (as tested)	Post-Test (as tested)	Change
A	2610	2610	2581	29
B	875	875	873	2
C	850	850	860	-10
D	4308	4308	4307	1
E	340	340	340	0
F	232	223	236	-13
G	281	281	285	-4
H	191	170	188 ¹	-18 ¹
I	206	171	192 ¹	-21 ¹
J1	202	159	150	9
J2	207	165	178 ¹	-13 ¹
K	275	229	210	19
L	253	253	253	0
M	325	275	248	27
N	670	670	590	80
O	670	670	---	---
P	1355	1355	---	---
Q	450	450	---	---
R	4192	4192	4180	12
S	4184	4184	4165	19
T	1306	1306	1545	-239

D = Length at centerline

E&L = Bumper Thickness

R = Right Side Length

S = Left Side Length

T = Width at B-pillar

J1 = To Pinch Weld

J2 = To Sill

¹ Approximate location was re-established after molding with measurement point came off during crash.

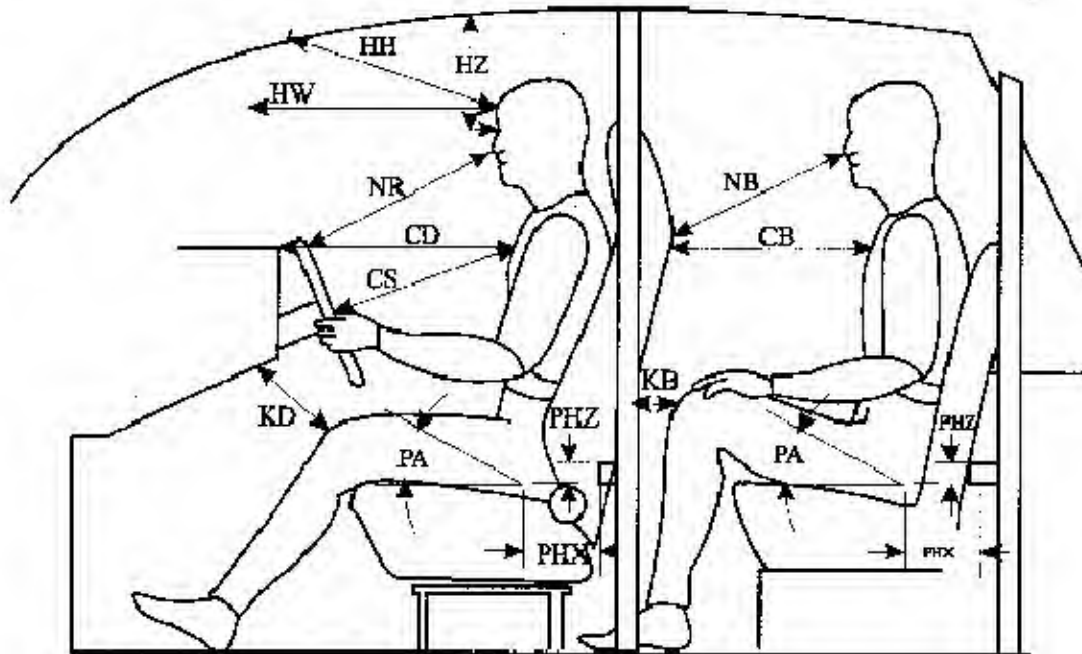
² No valid measurement could be taken because door was damaged during opening, before measurements were taken.

Data Sheet 7

SID Longitudinal Clearance Dimensions

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402



Left Side View

Note: All measurements are in millimeters with tolerance of ± 3 mm

Measurement	Driver SID # 65	Left Rear Pass. SID # 66
HH	301	N/A
HW	542	N/A
HZ	165	184
NR/NB	422	613
CD/CB	515	571
CS	321	N/A
KDL(KDA°)/KBL(KBA°)	133(31.2°)	250(21.3°)
KDR(KDA°)/KBR(KBA°)	124(29.4°)	235(31.3°)
PA°	23.3°	23.7°
PHX	219	275
PHZ	128	324

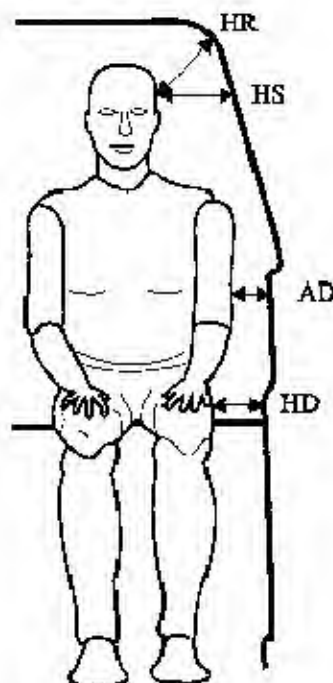
Note: 2-door vehicle shown. Rear dummy PHX and PHZ measurements for 4-door vehicle would use the C-post striker as a reference point.

Data Sheet 8

SID Lateral Clearance Dimensions

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402



Note: All measurements are in millimeters with tolerance of ± 3 mm

Measurement	Driver SID # 65		Left Rear Pass. SID # 66	
HR	169		198	
HS	275		305	
AD*	Lower: 96	Upper: 78	Lower: 99	Upper: 95
HD	128		162	

* Lower measurement is taken laterally at center of the lower rib accelerometer height from the SID arm segment to the closest part of the vehicle side.

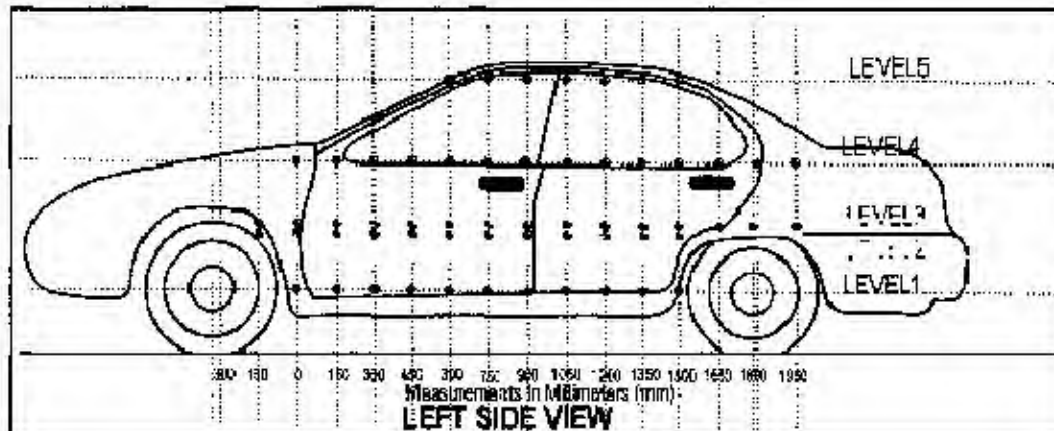
Upper measurement is taken laterally at center of the upper rib accelerometer height from the SID arm segment to the closest part of the vehicle side.

Data Sheet 9

Vehicle Side Measurements

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402



Level 5 - Window Top

Level 4 - Window Sill

Level 3 - Mid-Door

Level 2 - Occupant H-Point

Level 1 - Axle Centerline Height or Sill Top Height

Measurements Are Taken When The Vehicle Is In The "As Tested" Configuration.

Measurements along the vertical 750 mm line shown above:

Level 5 @ Window Top	=	<u>1359</u>	mm
Level 4 @ Window Sill	=	<u>865</u>	mm
Level 3 @ Mid Door	=	<u>617</u>	mm
Level 2 @ Occupant H-Point	=	<u>479</u>	mm
Level 1 @ Axle Centerline Height (or Sill Top Height)	=	<u>218</u>	mm

Data Sheet 10

Vehicle Exterior Crush Profiles - All Levels

NHTSA No.: C35402

Vehicle: 2003 Mazda Protegé S 4-door hatchback

Location	Height	{mm} From Impact Point														
		-1200	-1050	-900	-750	-600	-450	-300	-150	0	150	300	450	600	750	
Level 1 Side Sill	218	Pre ¹	---	---	---	---	---	---	---	675	673	670	672	671	672	
		Post ¹	---	---	---	---	---	---	---	---	---	---	---	---		
		Crush ¹	---	---	---	---	---	---	---	---	---	---	---	---		
Level 2 H-Point	479	Pre ¹	---	---	721	684	---	---	---	658	656	648	658	658	658	
		Post ¹	---	---	---	---	---	---	---	---	---	---	---	---		
		Crush ¹	---	---	---	---	---	---	---	---	---	---	---	---		
Level 3 Mid-Door	617	Pre ¹	---	---	726	702	658	---	650	658	660	653	654	655	653	
		Post ¹	---	---	---	---	---	---	---	---	---	---	---	---		
		Crush ¹	---	---	---	---	---	---	---	---	---	---	---	---		
Level 4 Window Sill	865	Pre ¹	---	---	830	790	768	746	735	726	719	718	710	704	700	
		Post ¹	---	---	---	---	---	---	---	---	---	---	---	---		
		Crush ¹	---	---	---	---	---	---	---	---	---	---	---	---		
Level 5 Window Top	1359	Pre ¹	---	---	---	---	---	---	---	---	---	---	---	---	940	
		Post ¹	---	---	---	---	---	---	---	---	---	---	---	---		
		Crush ¹	---	---	---	---	---	---	---	---	---	---	---	---		

Data Sheet 10 (Continued)

Vehicle Exterior Crush Profiles - All Levels

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

Location	Height	(mm) From Impact Point														
		900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2400	2550	2700		
Level 1 Side Sill	218	Pre ¹	673	673	673	678	674	683	683	---	---	---	---	---	700	
		Post ¹	---	---	---	---	---	---	---	---	---	---	---	---		
		Crush ¹	---	---	---	---	---	---	---	---	---	---	---	---		
Level 2 H-Point	479	Pre ¹	660	658	656	657	661	663	666	---	---	---	---	---		
		Post ¹	---	---	---	---	---	---	---	---	---	---	---			
		Crush ¹	---	---	---	---	---	---	---	---	---	---	---			
Level 3 Mid-Door	617	Pre ¹	656	653	653	652	656	662	662	660	---	---	---	---		
		Post ¹	---	---	---	---	---	---	---	---	---	---	---			
		Crush ¹	---	---	---	---	---	---	---	---	---	---	---			
Level 4 Window Sill	865	Pre ¹	698	694	691	692	696	695	700	703	703	710	720	730	743	
		Post ¹	---	---	---	---	---	---	---	---	---	---	---	---		
		Crush ¹	---	---	---	---	---	---	---	---	---	---	---	---		
Level 5 Window Top	1359	Pre ¹	925	921	920	923	923	921	925	932	940	950	963	983	---	
		Post ¹	---	---	---	---	---	---	---	---	---	---	---	---	---	
		Crush ¹	---	---	---	---	---	---	---	---	---	---	---	---	---	

¹ No post crush measurements or crush differences are available because struck side doors were opened before post-test measurements were taken.

Data Sheet 11

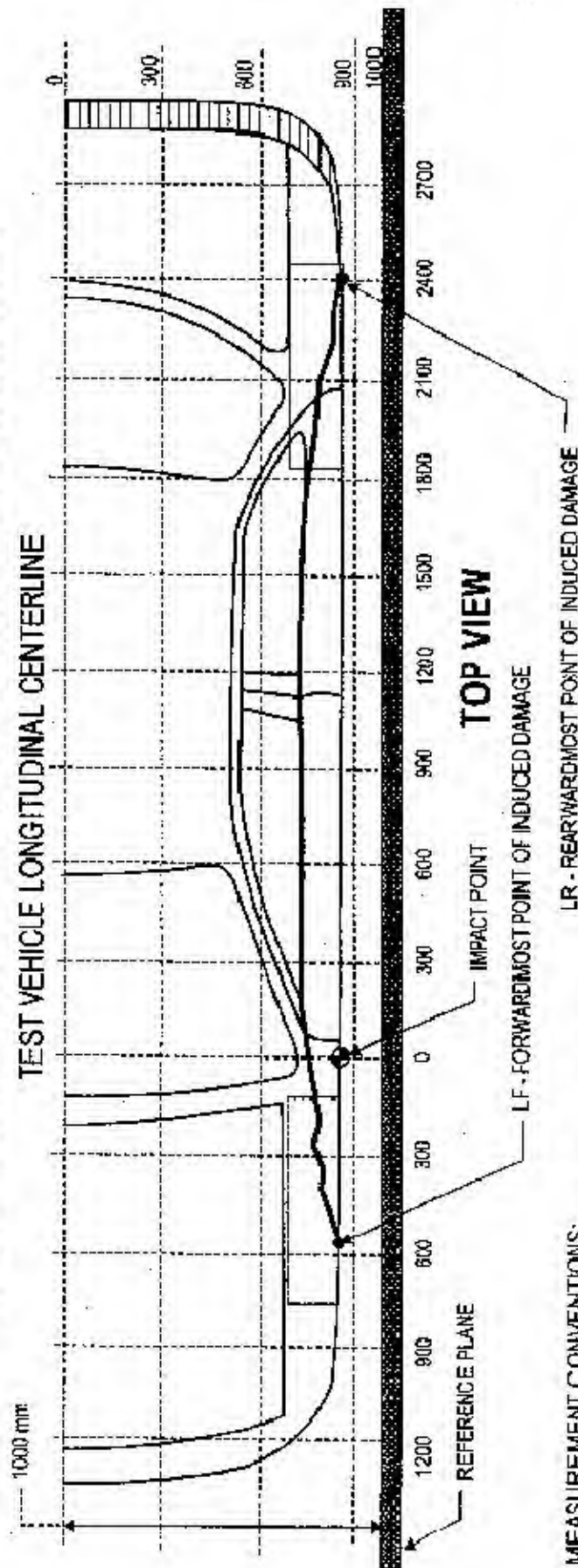
Vehicle Damage Profile Distances

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

NOTE: All measurements are in millimeters (mm) and should be accurate to plus or minus 3mm.

TEST VEHICLE LONGITUDINAL CENTERLINE



MEASUREMENT CONVENTIONS:

Forward of the impact point (towards front of vehicle) is considered negative (-)

Rearward of the impact point (towards rear end of vehicle) is considered positive (+)

DPD Measurements	Post-Test (mm) ¹	Pre-Test (mm)	Static Crush (mm) ¹
6: LF = -300 mm (Level 4)	---	735	---
5: 300 mm (Level 4)	---	710	---
4: 900 mm (Level 4)	---	698	---
3: 1500 mm (Level 4)	---	696	---
2: 2100 mm (Level 4)	---	703	---
1: LR = 2400 mm (Level 4)	---	720	---

¹ Struck side doors were opened before post-test measurements were taken. Full length of induced damage was -200 to 2270 mm.

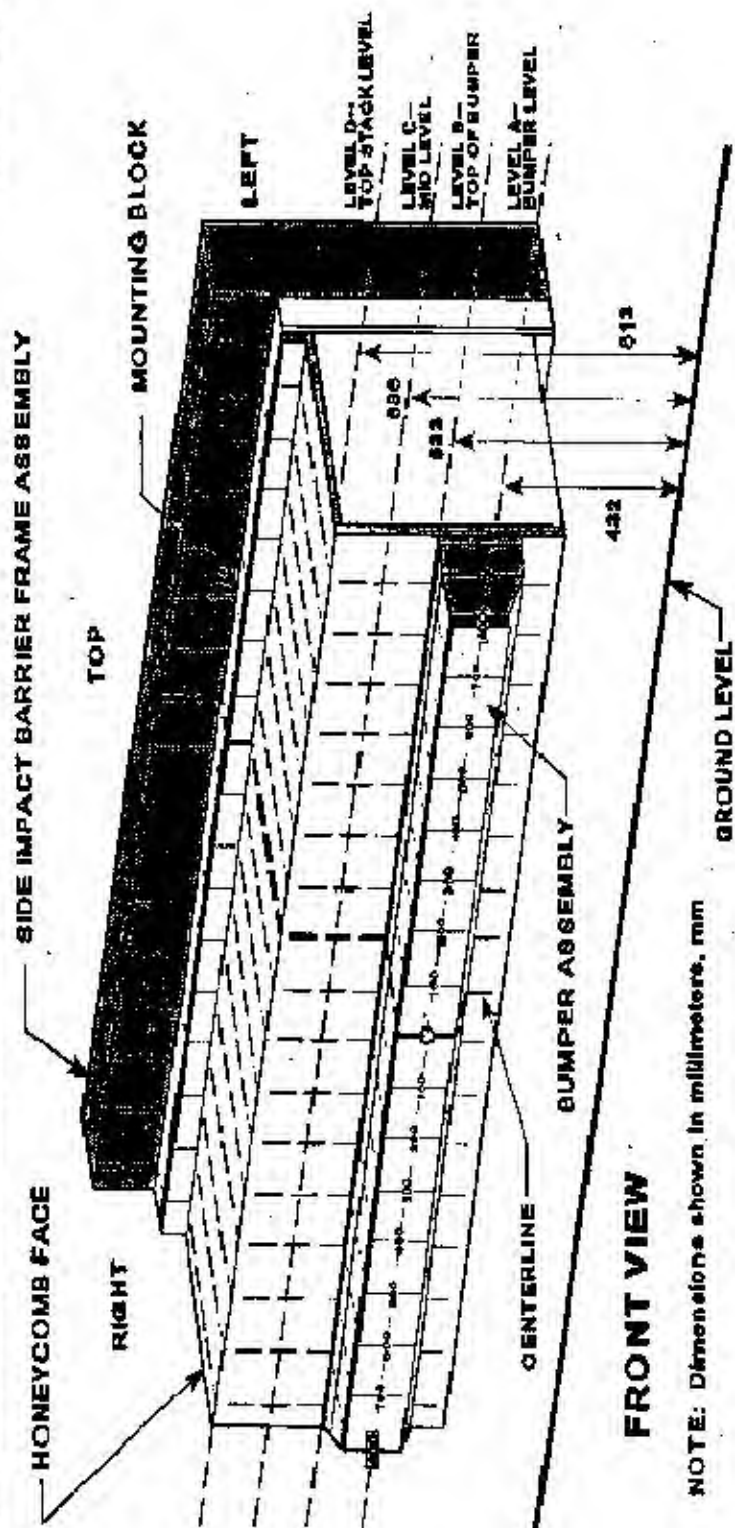
Data Sheet 12

Exterior Static Crush For Impactor Face

(Grid as looking at MDB from front)

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402



FRONT VIEW

NOTE: Dimensions shown in millimeters, mm

Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

		Distance Right of Center (mm)									Distance Left of Center (mm)								
Location	Height At CL	800	700	600	500	400	300	200	100	0	100	200	300	400	500	600	700	800	
Top-Shell Level - Level D	814	-35	2	5	4	3	1	-1	1	1	-1	-1	-2	-4	-17	-51	-86	-130	
Mid Level Level C	685	-36	-2	2	1	0	-5	-5	-1	-2	0	1	0	-1	-2	-10	-57	-100	
Top Bumper Level - Level B	560	-66	-34	-10	-6	-6	-6	-3	-1	-1	-2	-1	0	0	0	-6	-27	-33	
Mid Bumper Level - Level A	432	-50	-49	-48	-48	-50	-38	-33	-27	-28	-28	-28	-33	-29	-36	-52	-72	-78	

All measurements are in millimeters and have a tolerance of ± 3 mm.

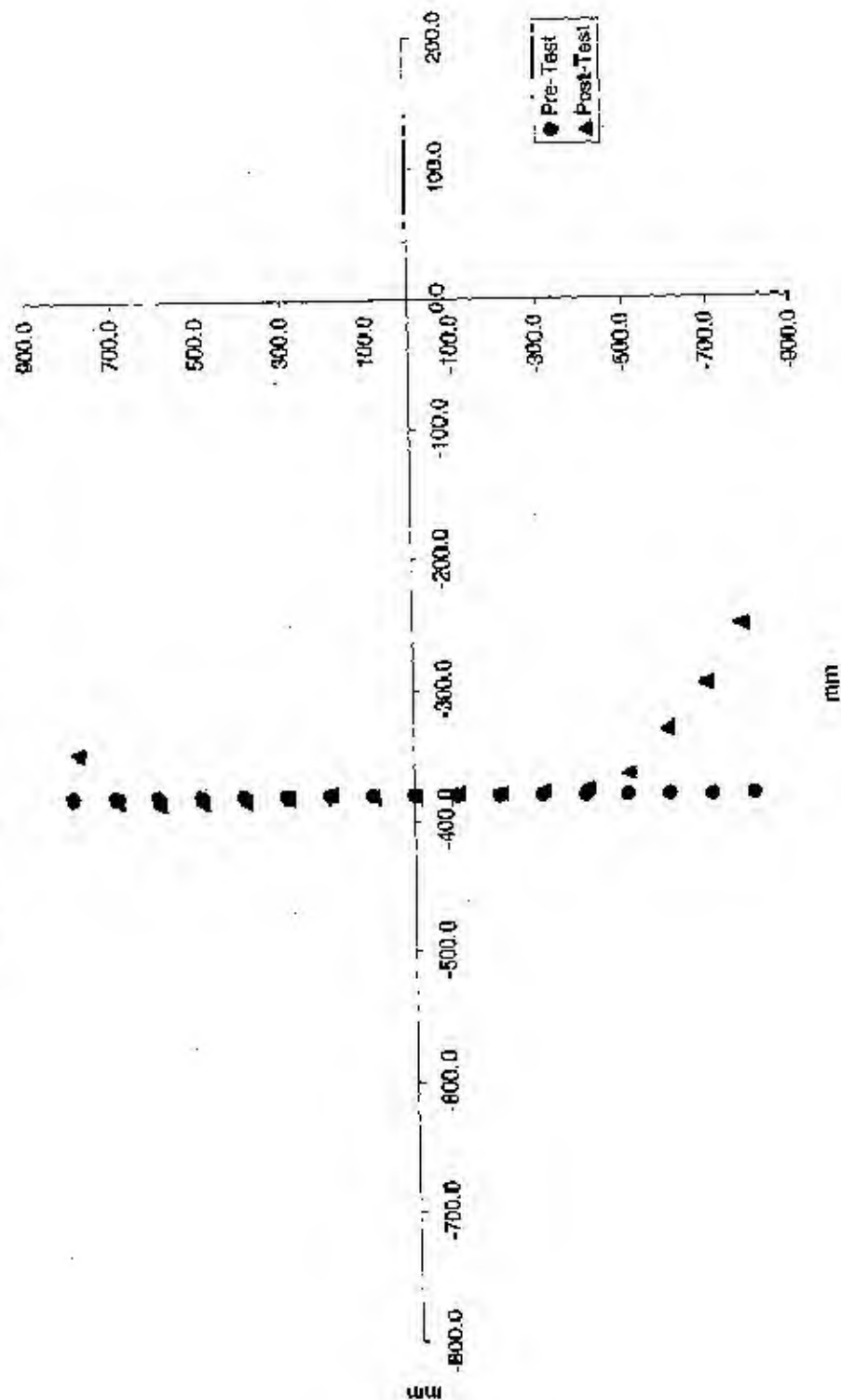
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

Level D - Deformable Barrier Face Profile 1-17



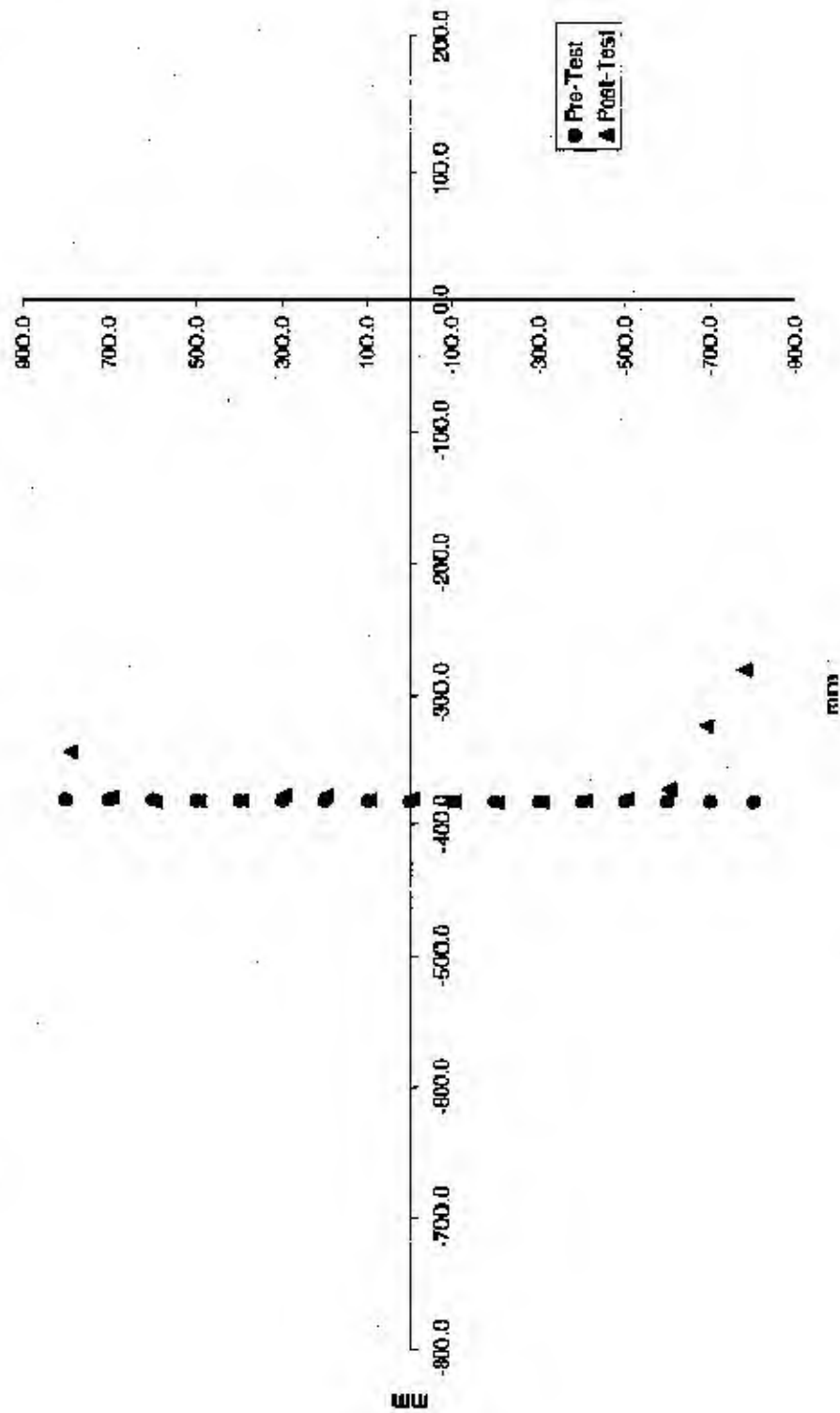
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: G35402

Level C - Deformable Barrier Face Profile 18-34



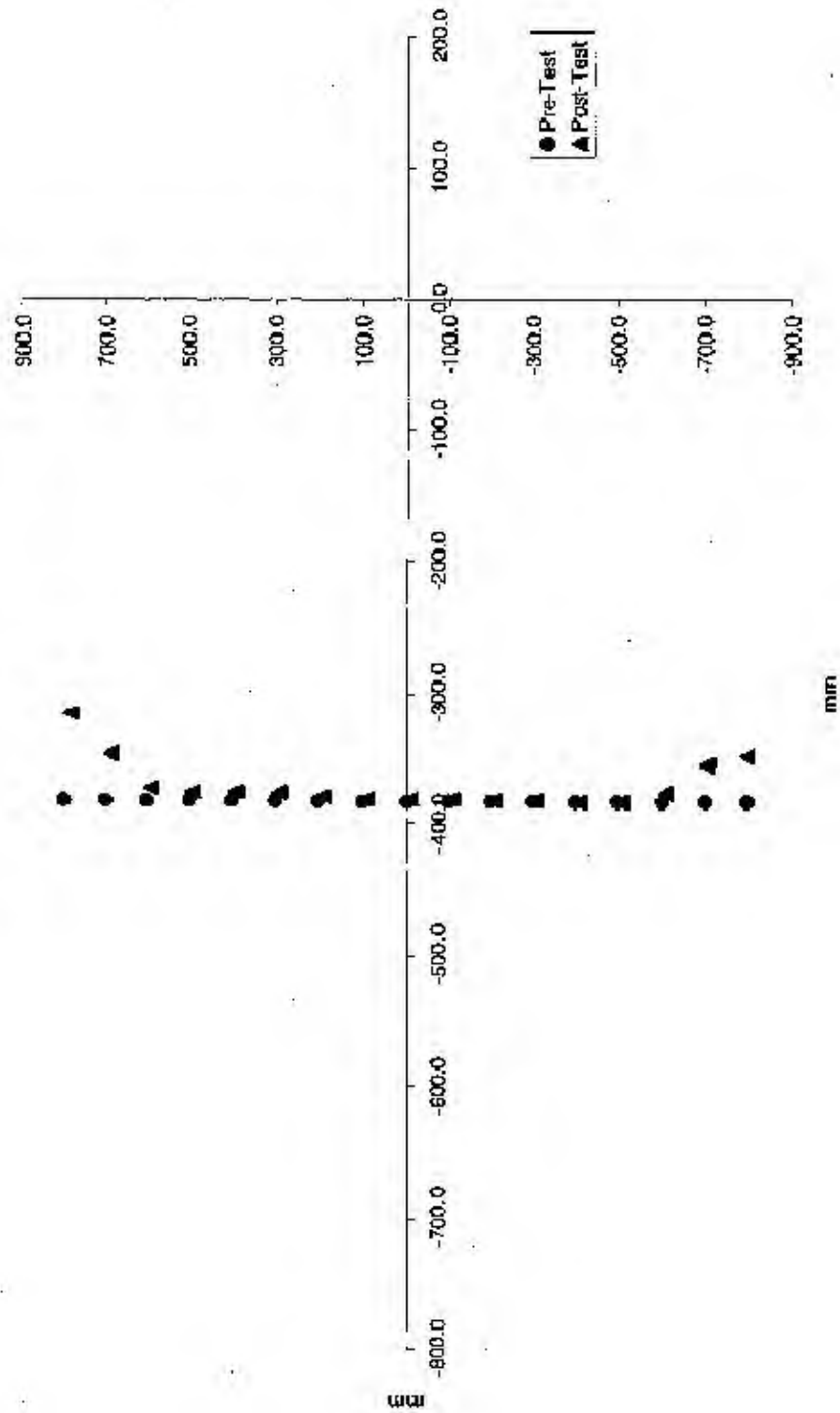
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

Level B - Deformable Barrier Face Profile 35-51



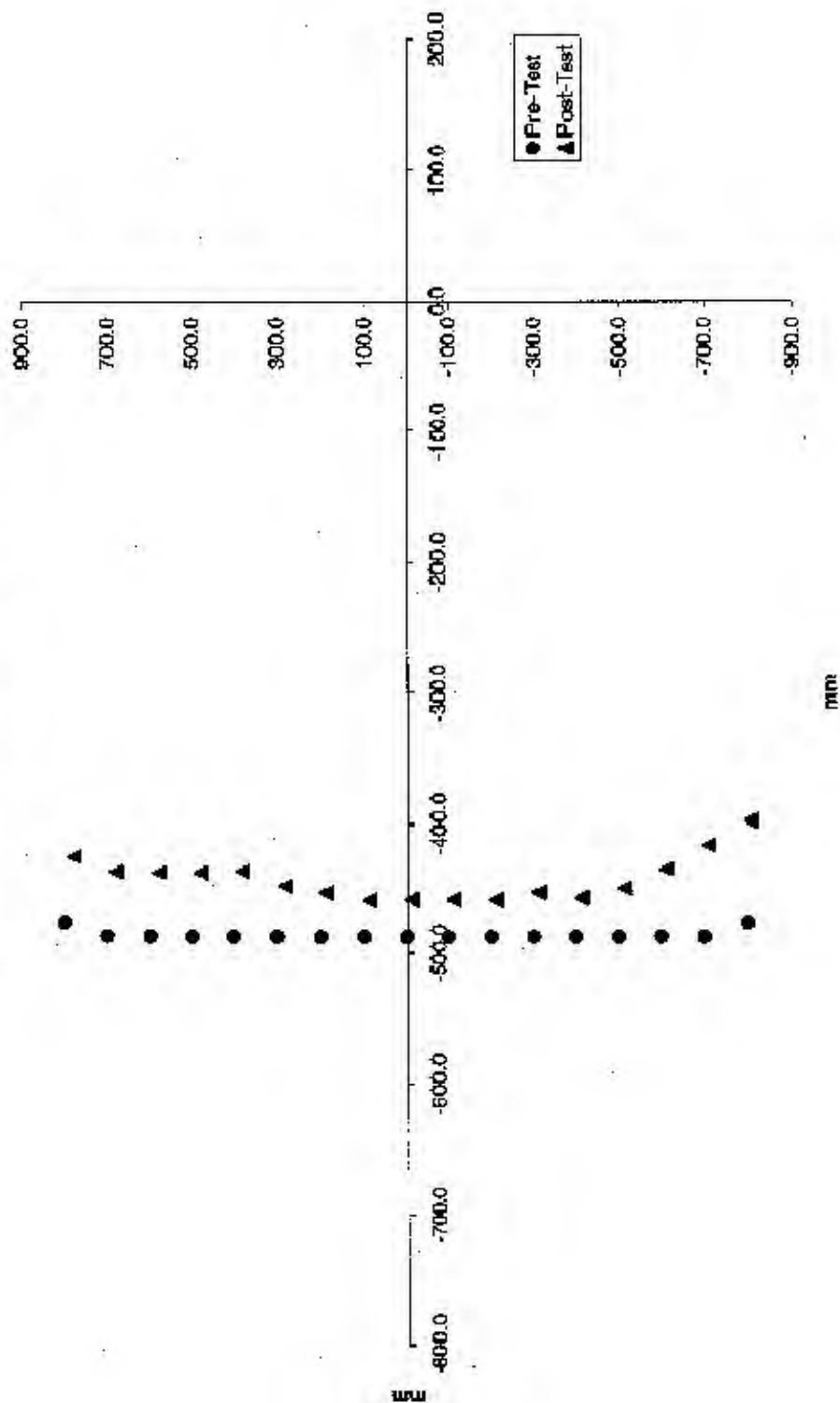
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

Level A - Deformable Barrier Face Profile 52-68



Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NIHTSA No.: C35402

Deformable Barrier Face Profile

Level D - Top Stack

Pre-Test

Index	Xmm	Ymm	Zmm
1	-381	801	-39
2	-381	701	-40
3	-381	600	-40
4	-381	500	-41
5	-381	400	-41
6	-381	301	-41
7	-381	200	-42
8	-382	100	-42
9	-382	0	-43
10	-382	-100	-43
11	-382	-199	-44
12	-382	-300	-44
13	-382	-400	-44
14	-382	-500	-45
15	-382	-600	-45
16	-383	-700	-46
17	-383	-800	-46

Post-Test

Index	Xmm	Ymm	Zmm
1	-346	790	-53
2	-383	698	-53
3	-386	598	-52
4	-385	497	-50
5	-384	397	-49
6	-382	298	-47
7	-380	197	-46
8	-382	97	-44
9	-382	-4	-43
10	-381	-103	-41
11	-381	-203	-39
12	-380	-303	-38
13	-378	-403	-38
14	-365	-502	-38
15	-331	-595	-44
16	-296	-688	-50
17	-252	-776	-58

Difference

Index	Xmm	Ymm	Zmm
1	-35	12	14
2	2	3	13
3	5	3	11
4	4	3	9
5	3	3	7
6	1	3	5
7	-1	3	3
8	1	3	2
9	1	3	0
10	-1	3	-2
11	-1	4	-4
12	-2	4	-6
13	-4	4	-7
14	-17	2	-7
15	-51	-5	-2
16	-86	-12	4
17	-130	-24	12

Data Sheet 12 (Continued)
Exterior Static Crush For Impactor Face

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

Deformable Barrier Face Profile Cont'd.

Level C - Mid Level

Pre-Test

Index	Xmm	Ymm	Zmm
18	-381	802	-167
19	-381	701	-168
20	-381	601	-169
21	-381	501	-169
22	-382	401	-170
23	-382	302	-171
24	-382	202	-171
25	-382	100	-171
26	-382	0	-172
27	-383	-99	-172
28	-382	-199	-172
29	-382	-299	-173
30	-382	-399	-173
31	-382	-499	-173
32	-382	-598	-174
33	-383	-699	-175
34	-383	-800	-176

Post-Test

Index	Xmm	Ymm	Zmm
18	-345	789	-181
19	-379	695	-182
20	-383	595	-180
21	-383	496	-179
22	-382	396	-178
23	-377	296	-176
24	-377	196	-175
25	-381	95	-173
26	-380	-5	-171
27	-383	-104	-170
28	-383	-204	-168
29	-383	-305	-167
30	-382	-405	-165
31	-381	-505	-164
32	-373	-603	-165
33	-326	-690	-174
34	-283	-780	-183

Difference

Index	Xmm	Ymm	Zmm
18	-36	13	14
19	-2	6	13
20	2	5	11
21	1	5	10
22	0	5	8
23	-5	5	6
24	-5	5	3
25	-1	5	1
26	-2	5	-1
27	0	5	-2
28	1	5	-4
29	0	5	-6
30	-1	6	-8
31	-2	6	-9
32	-10	5	-9
33	-57	-8	-1
34	-100	-20	7

Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

Deformable Barrier Face Profile Cont'd.

Level B - Top of Bumper

Pre-Test

Index	Xmm	Ymm	Zmm
35	-381	802	-294
36	-382	701	-294
37	-382	602	-294
38	-382	501	-296
39	-382	402	-295
40	-382	302	-295
41	-382	202	-296
42	-383	101	-297
43	-383	1	-298
44	-383	-99	-298
45	-383	-199	-298
46	-383	-298	-299
47	-383	-399	-299
48	-383	-499	-300
49	-383	-599	-301
50	-383	-699	-301
51	-383	-799	-301

Post-Test

Index	Xmm	Ymm	Zmm
35	-316	785	-295
36	-348	689	-301
37	-372	593	-304
38	-376	493	-304
39	-376	394	-302
40	-376	294	-299
41	-379	194	-299
42	-381	93	-298
43	-381	-7	-297
44	-381	-107	-295
45	-382	-207	-294
46	-382	-306	-292
47	-384	-407	-290
48	-383	-506	-289
49	-377	-607	-288
50	-356	-704	-284
51	-350	-800	-286

Difference

Index	Xmm	Ymm	Zmm
35	-66	17	1
36	-34	12	7
37	-9	9	10
38	-6	8	9
39	-6	8	7
40	-6	8	4
41	-3	8	3
42	-1	8	1
43	-1	8	-1
44	-2	8	-4
45	-1	8	-5
46	0	8	-7
47	0	8	-8
48	0	8	-10
49	-6	8	-12
50	-27	5	-17
51	-33	1	-16

Data Sheet 12 (Continued)
Exterior Static Crush For Impactor Face

Vehicle: 2003 Mazda Protegé S 4-door hatchback

NHTSA No.: C35402

Deformable Barrier Face Profile Cont'd.

Level A - Mid Dumper

Pre-Test

Index	Xmm	Ymm	Zmm
52	-474	801	-418
53	-485	702	-418
54	-485	602	-419
55	-486	502	-420
56	-486	403	-421
57	-486	302	-422
58	-487	202	-422
59	-487	102	-424
60	-487	2	-424
61	-487	-98	-425
62	-487	-198	-425
63	-487	-297	-426
64	-487	-398	-426
65	-487	-498	-427
66	-487	-597	-428
67	-487	-698	-428
68	-476	-795	-430

Post-Test

Index	Xmm	Ymm	Zmm
52	-424	780	-441
53	-436	681	-440
54	-437	581	-439
55	-438	481	-436
56	-436	382	-434
57	-448	283	-435
58	-454	190	-437
59	-460	90	-438
60	-459	-10	-437
61	-459	-110	-434
62	-459	-211	-436
63	-454	-310	-433
64	-458	-410	-433
65	-450	-510	-431
66	-435	-609	-428
67	-415	-707	-424
68	-398	-804	-422

Difference

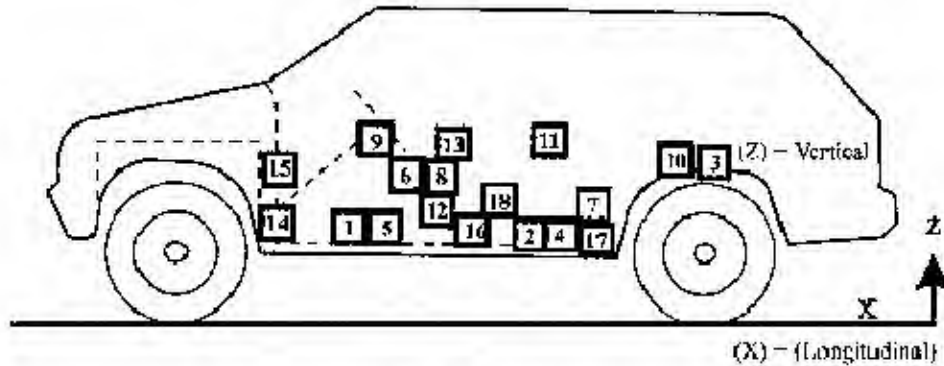
Index	Xmm	Ymm	Zmm
52	-50	21	22
53	-49	21	22
54	-48	21	20
55	-48	21	16
56	-50	21	13
57	-38	19	13
58	-33	12	15
59	-27	12	14
60	-28	12	13
61	-28	12	9
62	-28	12	10
63	-33	13	7
64	-29	13	6
65	-36	13	4
66	-52	12	0
67	-72	9	-4
68	-78	9	-8

Data Sheet 13

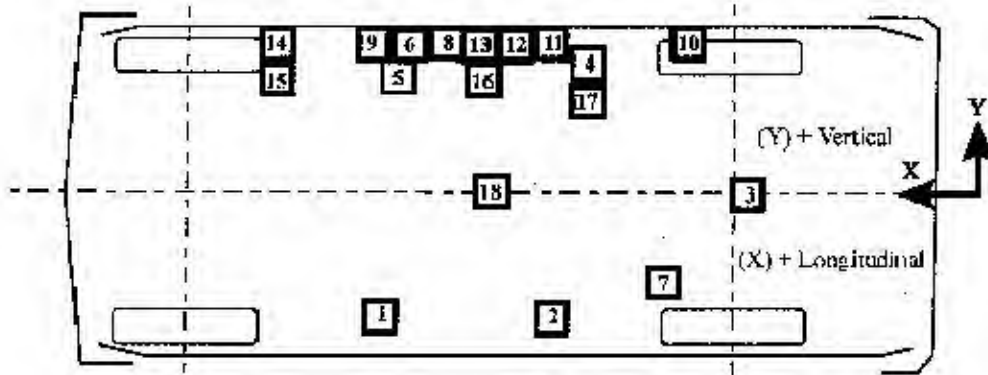
Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2003 Mazda Protegé S 4-door hatchback

NHTSA No.: C35402



Side View



Bottom View

- | | |
|------------------------------------|--|
| 1-Right Front Side Sill | 10-Left Rear Door Mid Rear |
| 2-Right Side Sill at Rear Seat | 11-Left Rear Door Upper Centerline |
| 3-Rear Floorpan Above Axle | 12-Left Side Lower B-pillar |
| 4-Left Side Sill at Rear Seat | 13-Left Side Middle B-pillar |
| 5-Left Front Side Sill | 14-Left Side Lower A-pillar |
| 6-Left Front Door on Centerline | 15-Left Side Middle A-pillar |
| 7-Right Rear Occupant Compartment | 16-Left Side Front Seat Track at H-point |
| 8-Left Front Door Mid Rear | 17-Left Rear Seat Track at H-point |
| 9-Left Front Door Upper Centerline | 18-Vehicle Center of Gravity |

Data Sheet 13 (Continued)

Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NIHTSA No.: C35402

TEST NUMBER: 030212-1

No. LOCATION	X	Y	Z	POSITIVE		NEGATIVE	
				DIRECTION		DIRECTION	
1 RIGHT SIDE SILL AT FRONT SEAT	2660 mm	670 mm	-256 mm				
LONGITUDINAL				25.6 g	@ 31.8 ms	4.8 g	@ 26.1 ms
LATERAL				21.1 g	@ 9.2 ms	2.3 g	@ 293.8 ms
VERTICAL				2.7 g	@ 125.3 ms	5.4 g	@ 8.8 ms
RESULTANT				27.3 g	@ 31.8 ms		
2 RIGHT SIDE SILL AT REAR SEAT	1670 mm	660 mm	-257 mm				
LONGITUDINAL				3.6 g	@ 47.5 ms	5.3 g	@ 33.9 ms
LATERAL				19.2 g	@ 23.5 ms	2.2 g	@ 125.3 ms
VERTICAL				4.3 g	@ 37.8 ms	4.9 g	@ 13.0 ms
RESULTANT				19.5 g	@ 23.4 ms		
3 REAR FLOORPAN ABOVE AXLE	880 mm	0 mm	-451 mm				
LONGITUDINAL				1.5 g	@ 130.2 ms	7.2 g	@ 29.2 ms
LATERAL				20.1 g	@ 35.0 ms	2.3 g	@ 160.7 ms
VERTICAL				10.1 g	@ 21.7 ms	8.1 g	@ 25.5 ms
RESULTANT				21.6 g	@ 33.9 ms		
4 LEFT SIDE SILL AT REAR SEAT	1694 mm	-660 mm	-273 mm				
LATERAL				36.7 g	@ 6.3 ms	4.7 g	@ 172.6 ms
5 LEFT SIDE SILL AT FRONT SEAT	2669 mm	-670 mm	-216 mm				
LATERAL				20.6 g	@ 15.4 ms	37.9 g	@ 8.2 ms

Data Sheet 13 (Continued)

Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

TEST NUMBER: 030212-1

No. LOCATION

POSITIVE
DIRECTION

NEGATIVE
DIRECTION

Z

Y

X

6 LEFT FRONT DOOR ON CENTERLINE LATERAL	2415 mm	-746 mm	-590 mm	196.5 g	@ 8.8 ms	92.0 g	@ 26.9 ms
7 RIGHT REAR OCCUPANT COMPARTMENT LATERAL	1570 mm	625 mm	-327 mm	20.0 g	@ 23.4 ms	2.3 g	@ 125.5 ms
8 LEFT FRONT DOOR MIDREAR LATERAL	2070 mm	-720 mm	-590 mm	130.2 g	@ 7.1 ms	49.8 g	@ 22.8 ms
9 LEFT FRONT DOOR UPPER CENTERLINE LATERAL	2415 mm	-715 mm	-845 mm	----	@ ----	----	@ ----
10 LEFT REAR SIDE PANEL MIDREAR LATERAL	1190 mm	-715 mm	-579 mm	52.8 g	@ 7.5 ms	32.1 g	@ 174.5 ms
11 LEFT REAR SIDE PANEL UPPER CENTERLINE LATERAL	1420 mm	-705 mm	-877 mm	205.1 g	@ 24.6 ms	133.5 g	@ 35.3 ms
12 LEFT LOWER B-POST LATERAL	1800 mm	-690 mm	-343 mm	117.0 g	@ 5.5 ms	18.0 g	@ 31.4 ms

Data Sheet 13 (Continued)

Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

TEST NUMBER: 030212-1

NO. LOCATION

X

Y

Z

POSITIVE
DIRECTION

NEGATIVE
DIRECTION

13 LEFT MIDDLE B-POST LATERAL ¹	1865 mm	-700 mm	-829 mm	----	@	----	@	----
14 LEFT LOWER A-POST LATERAL	2905 mm	-760 mm	-385 mm	123.6 g	@	3.9 ms	32.7 g	@ 28.5 ms
15 LEFT MIDDLE A-POST LATERAL ¹	2905 mm	-750 mm	-620 mm	----	@	----	----	@
16 LEFT FRONT SEAT TRACK LATERAL	2239 mm	-670 mm	-226 mm	61.6 g	@	6.1 ms	24.3 g	@ 30.6 ms
17 LEFT REAR SEAT TRACK LATERAL	1493 mm	-625 mm	-340 mm	20.9 g	@	11.4 ms	2.3 g	@ 173.8 ms
18 VEHICLE CENTER OF GRAVITY	2257 mm	0 mm	-354 mm					
LONGITUDINAL				3.0 g	@	45.2 ms	8.7 g	@ 23.6 ms
LATERAL				24.4 g	@	18.7 ms	4.3 g	@ 125.2 ms
VERTICAL				14.4 g	@	7.0 ms	6.5 g	@ 28.1 ms
RESULTANT				25.6 g	@	18.8 ms		

MEASUREMENT REFERENCE: X: + FORWARD FROM REAR BUMPER
Y: + RIGHTWARD FROM VEHICLE CENTERLINE
Z: + DOWNWARD FROM GROUND LEVEL

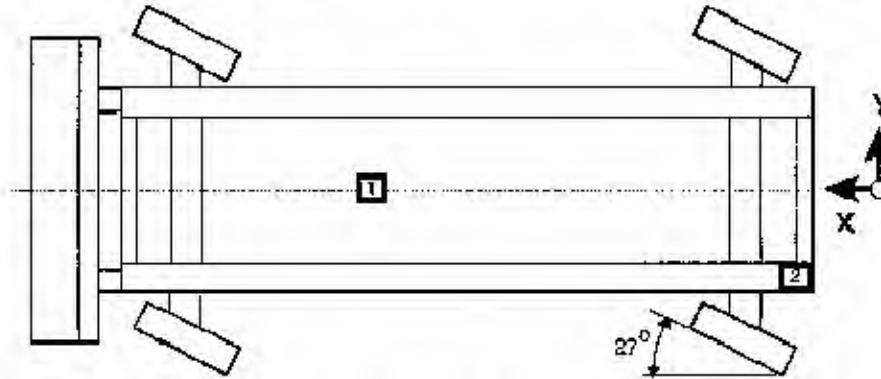
For acceleration data sign convention, see Report Sign Convention in Appendix D.
¹ See Data Acquisition Explanations

Data Sheet 14

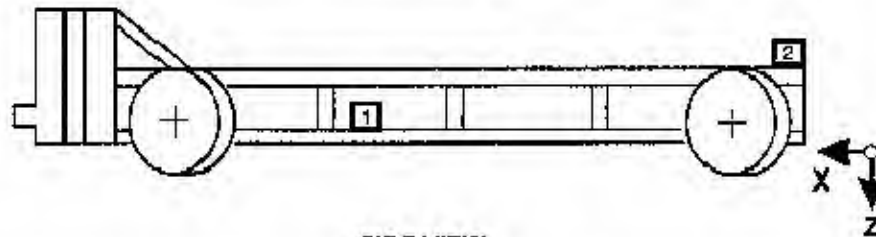
MDB Accelerometer Locations and Data Summary

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402



TOP VIEW



SIDE VIEW

Accel. No.	Location	Coordinates (millimeters)			Positive Direction		Negative Direction	
		X*	Y*	Z*	Max. (g)	Time (ms)	Max. (g)	Time (ms)
1	MDB Center of Gravity	1853	0	-519				
	Longitudinal X				1.7	146.4	-19.6	41.2
	Lateral Y				9.7	11.1	-7.4	36.5
	Vertical Z				4.3	39.0	-2.8	119.0
	Resultant R				19.9	40.8	0.1	-10.6
2	Rear Frame Member	411	-738	-628				
	Longitudinal X				2.2	132.2	-21.0	35.3
	Lateral Y				3.2	23.8	-2.1	56.2

*Reference: X = Rear Bumper (+ Forward)

Y = Vehicle Centerline (+ To Right)

Z = Ground Level (+ Down)

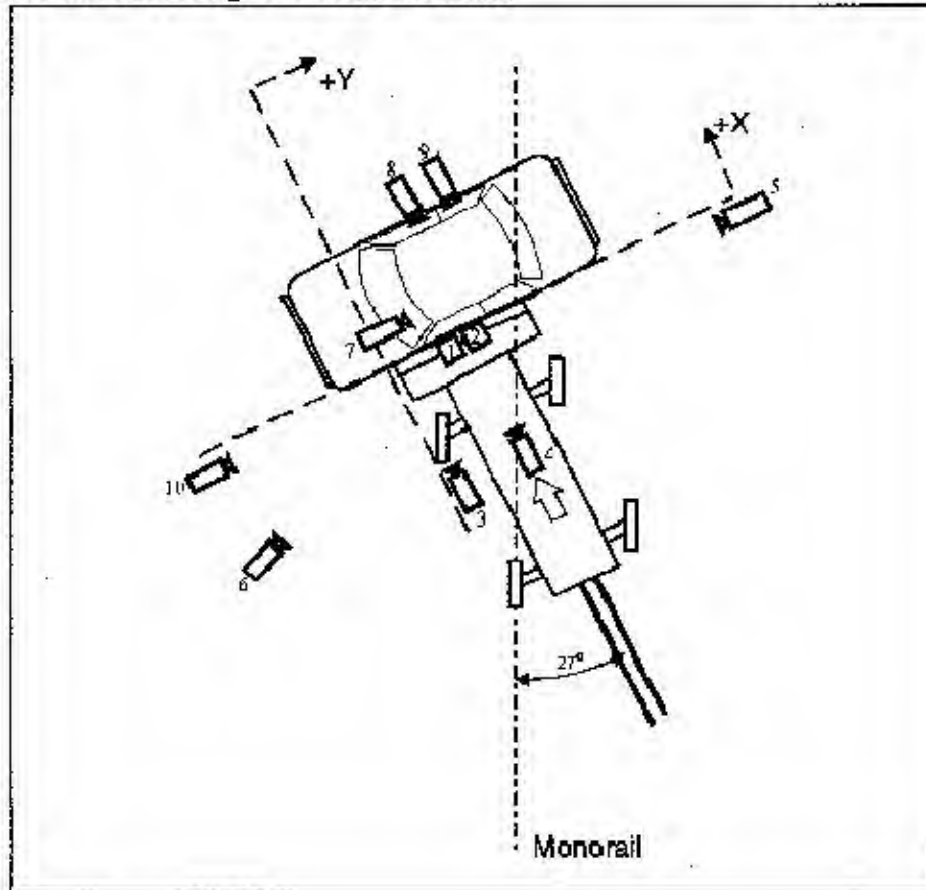
All measurements accurate to within ± 3 mm.

Data Sheet 15

High-Speed Camera Locations and Data Summary

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402



Impact
Area

Camera Number	Location	Location, mm			Angle (deg)	Lens (mm)	Speed (fps)
		X	Y	Z			
1	Overhead wide	260	2260	5750	-80.1	13	---- ¹
2	Overhead tight	0	1915	5754	-88.3	25	1000
3	Onboard MDB left side	-1750	-40	780	0.0	13	1005
4	Onboard MDB center	-2500	880	1397	-6.8	25	1025
5	Right side of MDB	-36	11850	1119	-0.1	13	1010
6	Left side of MDB	-3000	-4430	1223	-2.3	13	885
7	Onboard vehicle front	525	450	1150	-3.8	8	630
8	Onboard side front door	1639	805	1010	-4.6	8	---- ²
9	Onboard side rear door	1635	1820	1030	-2.2	8	405
10	Real-time Panning	-259	-5050	1105	-4.3	13	

+X: Forward (referenced to MDB) from impact point

+Y: Rightward (referenced to MDB) from impact point

+Z: Downward from ground level

¹ No LED's; unable to time.

² Camera ran too slow to time.

Section 5

Vehicle Fuel System Integrity

Data Sheet 16

FMVSS 301 Fuel System Integrity Data

NHTSA No.: C35402

Test Date: 02/25/03

Vehicle Year/Make/Model/Body Style: 2003 Mazda Protegé 5 4-door hatchback

Test Vehicle Impact Type :

- ☐ Frontal (48.28 km/h)
☐ Oblique (48.28 km/h) with ____° barrier
face first contacting the (driver/passenger) side
☐ Rear Moving Barrier (48.28 km/h)
☐ Lateral Moving Barrier (32.19 km/h)
☒ Side Impact Moving Deformable Barrier
(52.9 km/h) contacting the driver's side_ side

Fuel Spillage Measurement:

1. From impact until vehicle motion ceases
2. For five-minute period after vehicle motion ceases
3. For next 25 minutes.

Actual	Maximum Allowed
0 g	28 g
0 g	142 g
0 g	28 g/1 minute

Solvent Spillage Details :

None

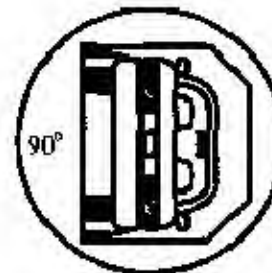
Data Sheet 17

FMVSS 301 Rollover Data

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

0 - 90 Degrees



1. Determination of Solvent Collection Time Period:

Rollover Fixture 90° Rotation Time	<u>2</u>	minutes	<u>0</u>	seconds
(Spec. Range = 1 to 3 minutes)				
FMVSS 301 Position Hold Time +	<u>5</u>	minutes	<u>0</u>	seconds
Total	<u>7</u>	minutes	<u>0</u>	seconds
Next whole minute interval	<u>7</u>	minutes		

2. FMVSS 301 Requirements:

(1) Time Period

First 5 minutes from onset of rotation	6th min.	7th min.	8th min. (if required)
--	----------	----------	------------------------

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g
-------	------	------	------

3. Actual Test Vehicle Solvent Spillage:

0 g	0 g	0 g	N/A
-----	-----	-----	-----

Note: Record spillage for whole minute intervals only as determined above.

4. Solvent Spillage Location(s):

None

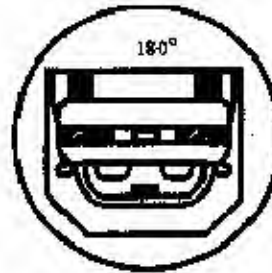
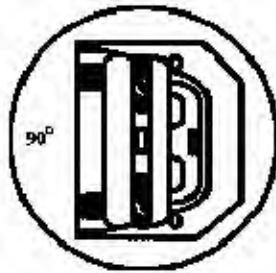
Data Sheet 17 (Continued)

FMVSS 301 Rollover Data

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

90 - 180 Degrees



1. Determination of Solvent Collection Time Period:

Rollover Fixture 90° Rotation Time 2 minutes 0 seconds
(Spec. Range = 1 to 3 minutes)
FMVSS 301 Position Hold Time + 5 minutes 0 seconds
Total 7 minutes 0 seconds
Next whole minute interval 7 minutes

2. FMVSS 301 Requirements:

(1) Time Period

First 5 minutes from onset of rotation	6th min.	7th min.	8th min. (if required)
--	----------	----------	------------------------

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g
-------	------	------	------

3. Actual Test Vehicle Solvent Spillage:

0 g	0 g	0 g	N/A
-----	-----	-----	-----

Note: Record spillage for whole minute intervals only as determined above.

4. Solvent Spillage Location(s):

None

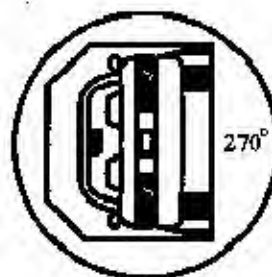
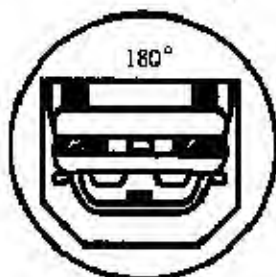
Data Sheet 17 (Continued)

FMVSS 301 Rollover Data

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

180 - 270 Degrees



1. Determination of Solvent Collection Time Period:

Rollover Fixture 90° Rotation Time	<u>2</u>	minutes	<u>0</u>	seconds
(Spec. Range – 1 to 3 minutes)				
FMVSS 301 Position Hold Time +	<u>5</u>	minutes	<u>0</u>	seconds
Total	<u>7</u>	minutes	<u>0</u>	seconds
Next whole minute interval	<u>7</u>	minutes		

2. FMVSS 301 Requirements:

(1) Time Period

First 5 minutes from onset of rotation	6th min.	7th min.	8th min. (if required)
--	----------	----------	------------------------

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g
-------	------	------	------

3. Actual Test Vehicle Solvent Spillage:

0 g	0 g	0 g	N/A
-----	-----	-----	-----

Note: Record spillage for whole minute intervals only as determined above.

4. Solvent Spillage Location(s):

None

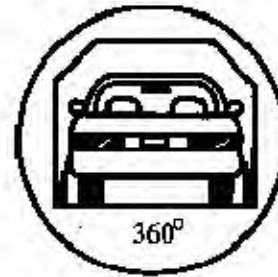
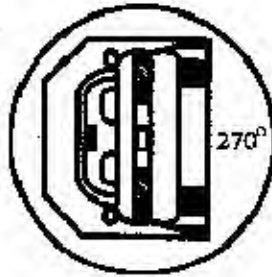
Data Sheet 17 (Continued)

FMVSS 301 Rollover Data

Vehicle: 2003 Mazda Protegé 5 4-door hatchback

NHTSA No.: C35402

270 - 360 Degrees



1. Determination Of Solvent Collection Time Period:

Rollover Fixture 90° Rotation Time 2 minutes 0 seconds
(Spec. Range = 1 to 3 minutes)
FMVSS 301 Position Hold Time + 5 minutes 0 seconds
Total 7 minutes 0 seconds
Next whole minute interval 7 minutes

2. FMVSS 301 Requirements:

(1) Time Period

First 5 minutes from onset of rotation	6th min.	7th min.	8th min. (if required)
--	----------	----------	------------------------

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g
-------	------	------	------

3. Actual Test Vehicle Solvent Spillage:

0 g	0 g	0 g	N/A
-----	-----	-----	-----

Note: Record spillage for whole minute intervals only as determined above.

4. Solvent Spillage Location(s):

None

Appendix A

Photographs

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Figure A-1 Pre-Test Front View of Test Vehicle

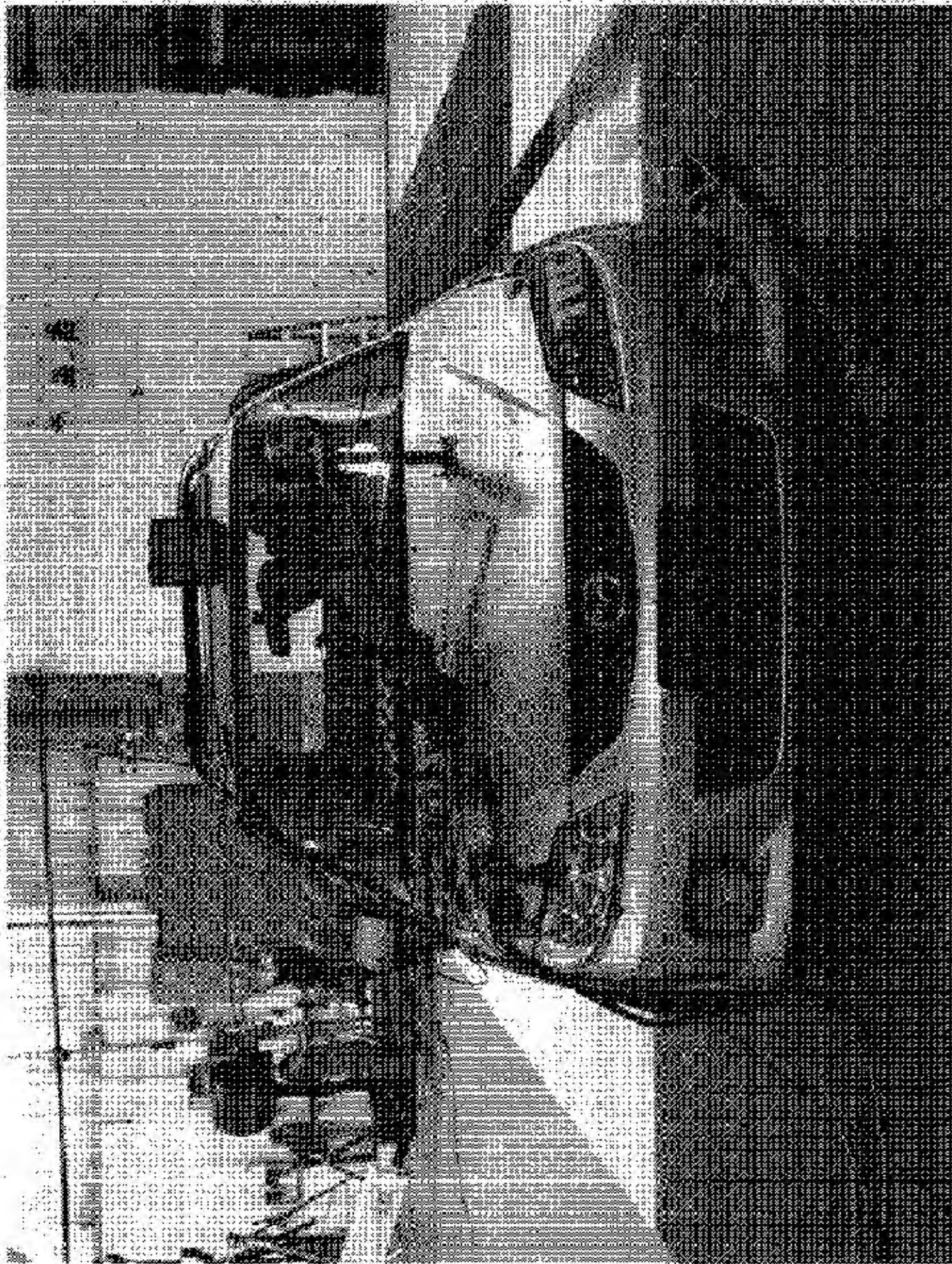


Figure A-2 Post-Test Front View of Test Vehicle

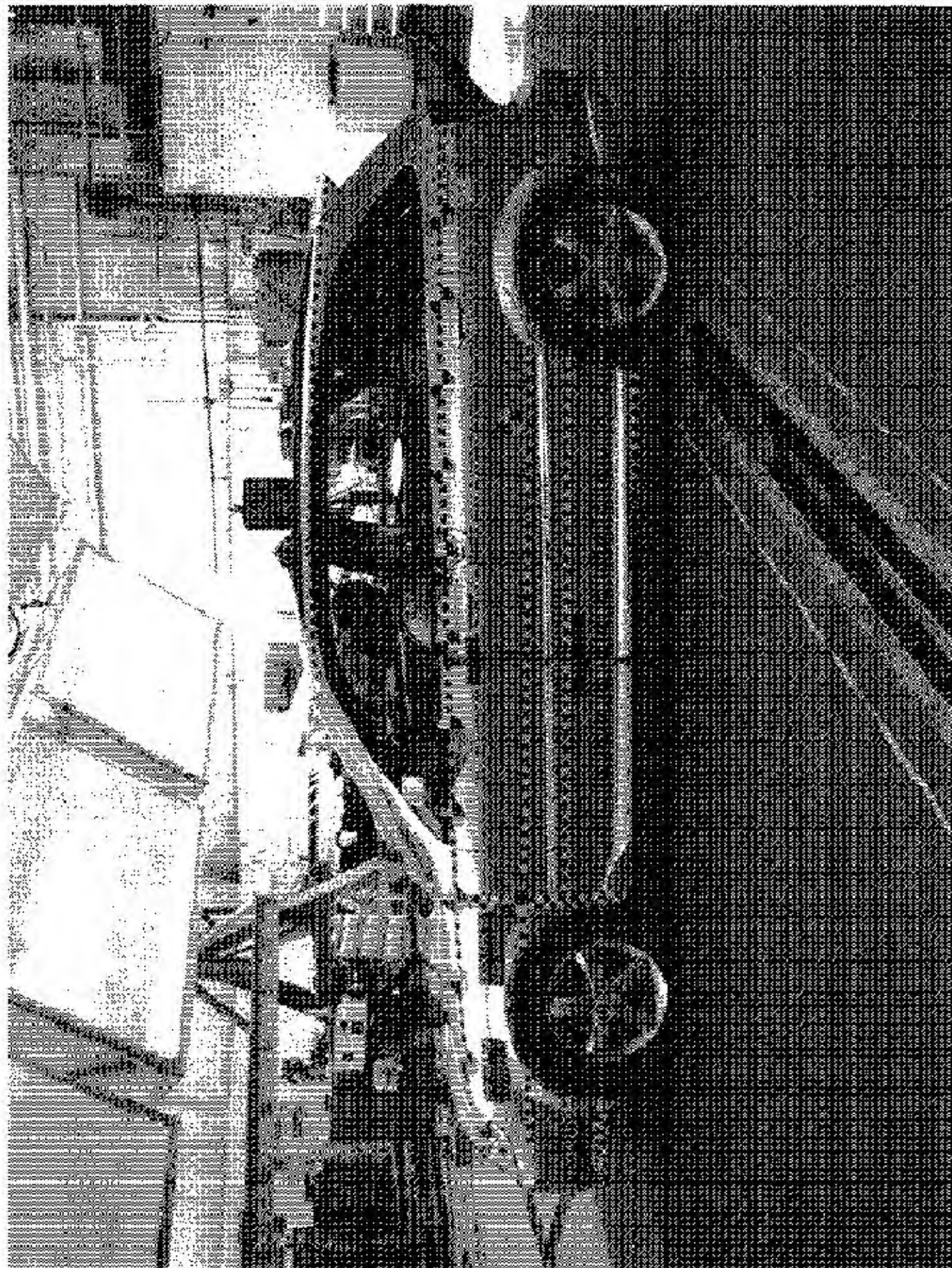


Figure A-3 Pre-Test Impacted Side View of Test Vehicle

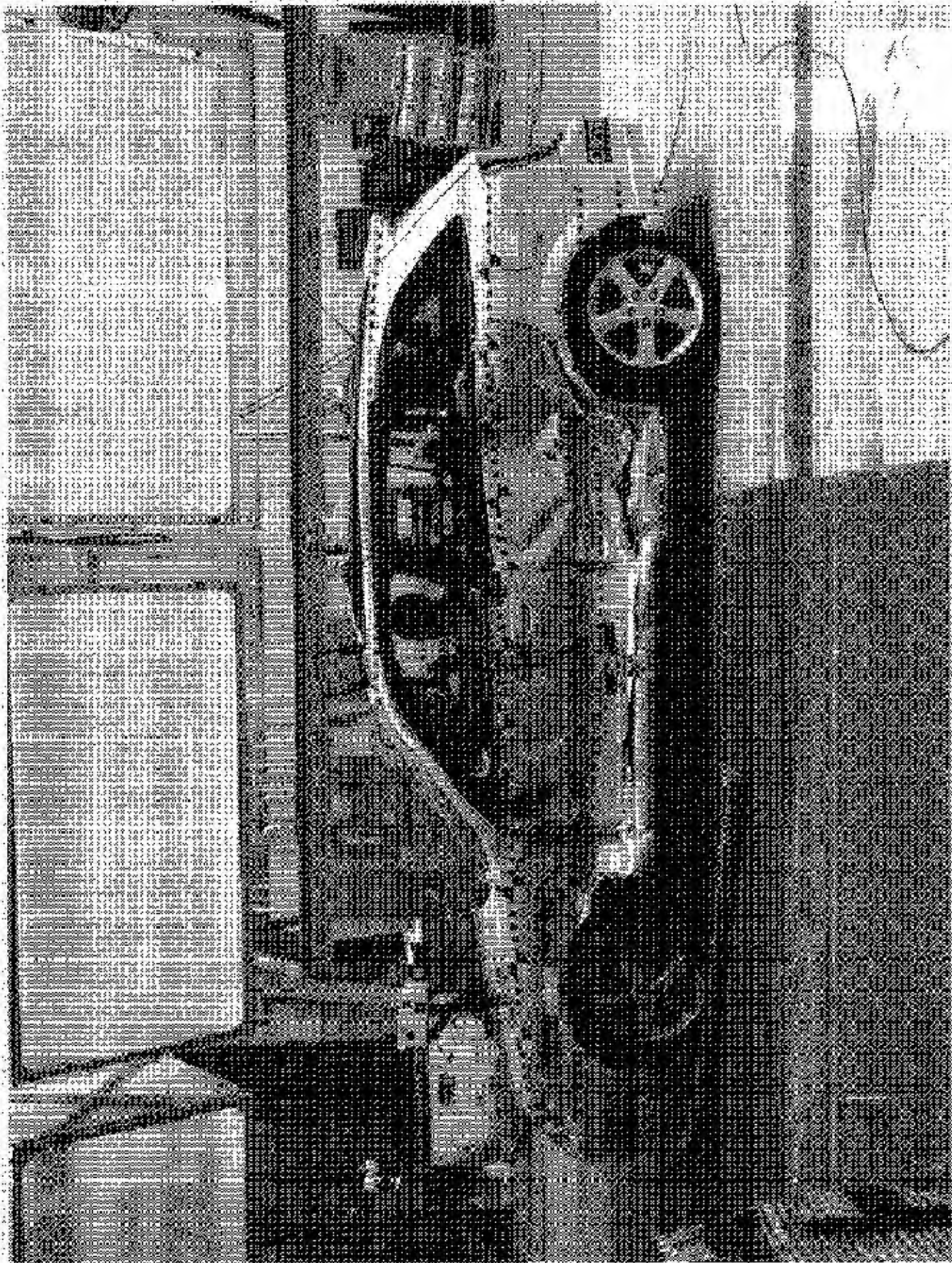


Figure A-4 Post-Test Impacted Side View of Test Vehicle



Figure A-5 Pre-Test Rear View of Test Vehicle

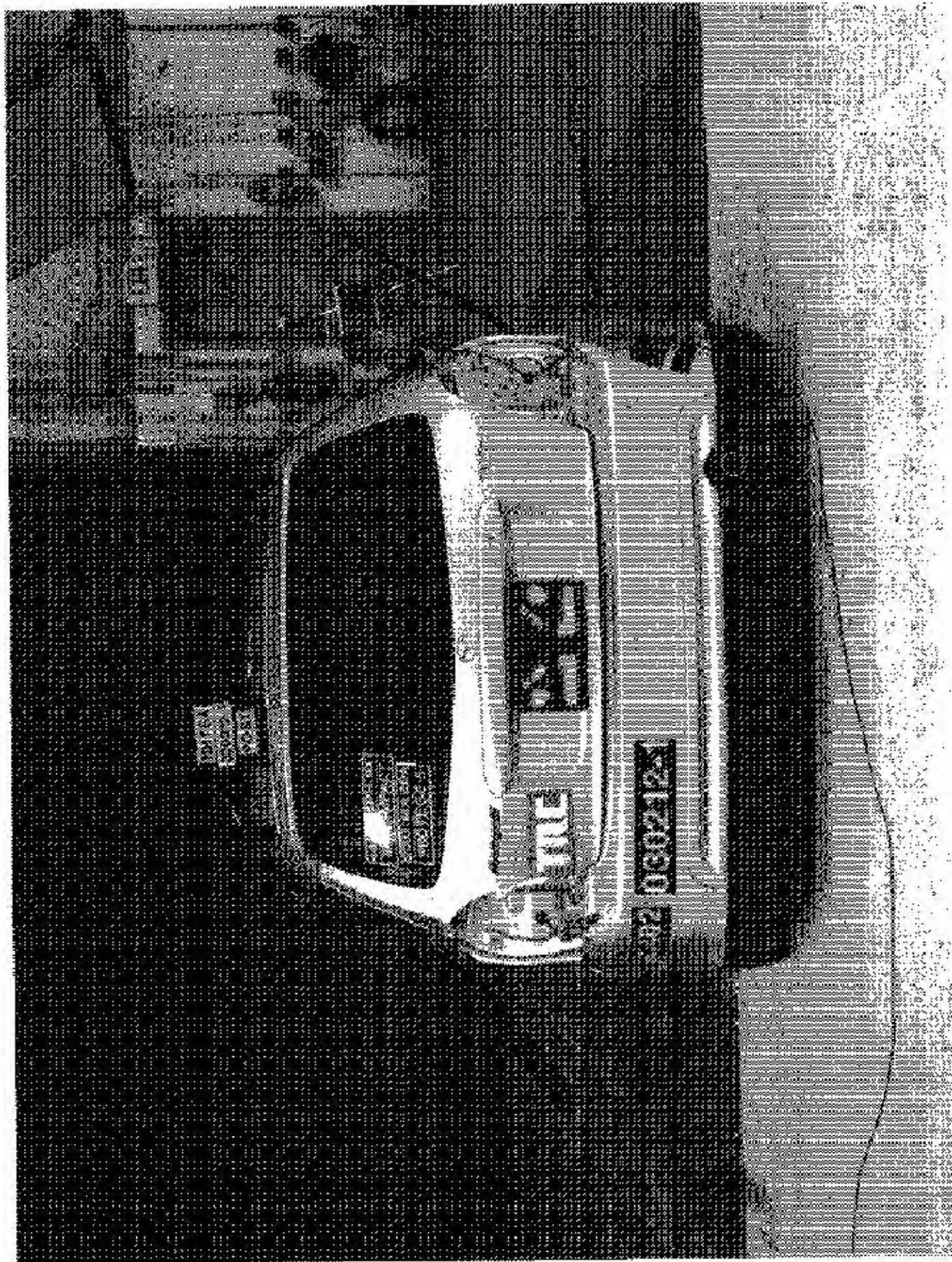


Figure A-6 Post-Test Rear View of Test Vehicle

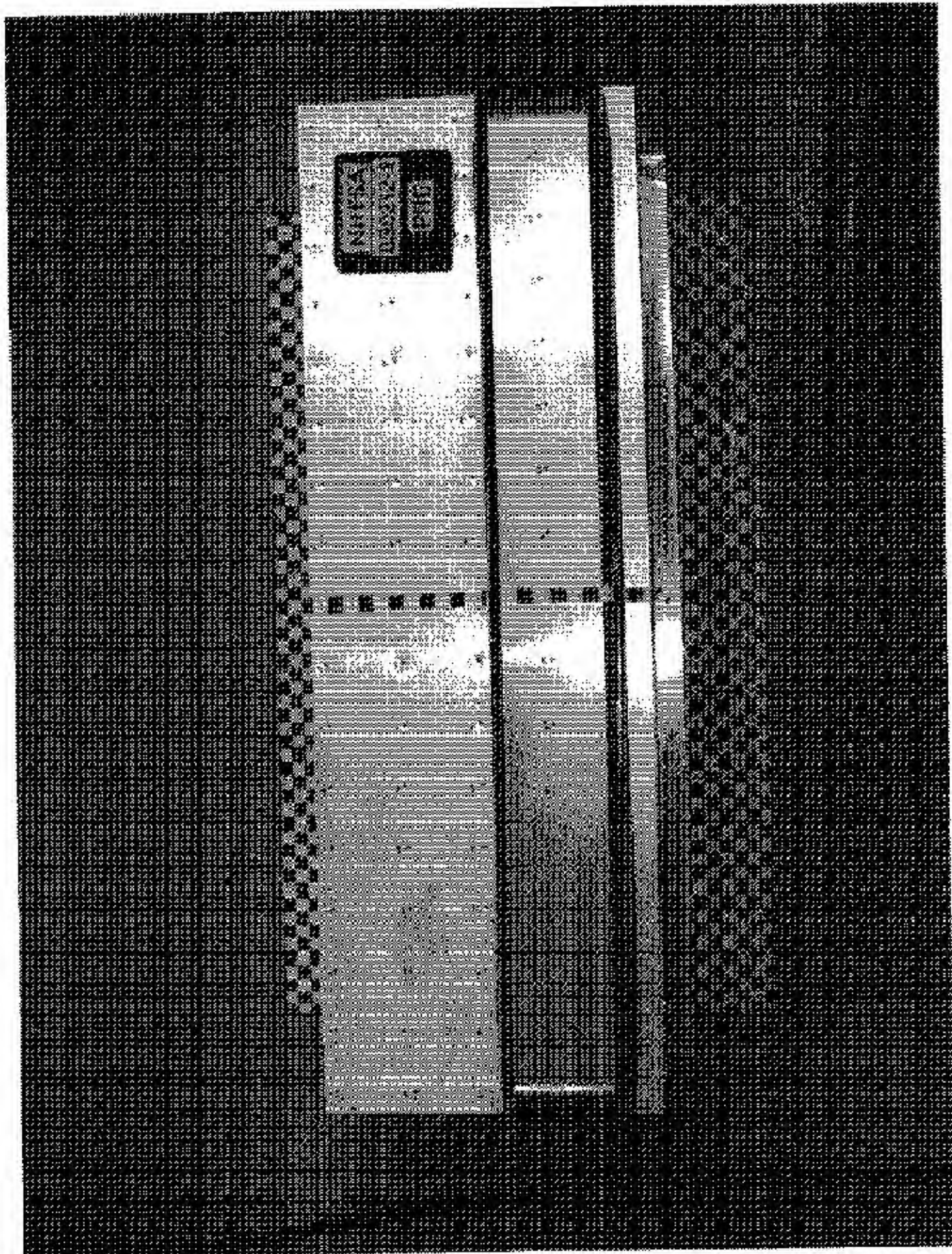


Figure A-7 Pre-Test Frontal View of Impactor Face

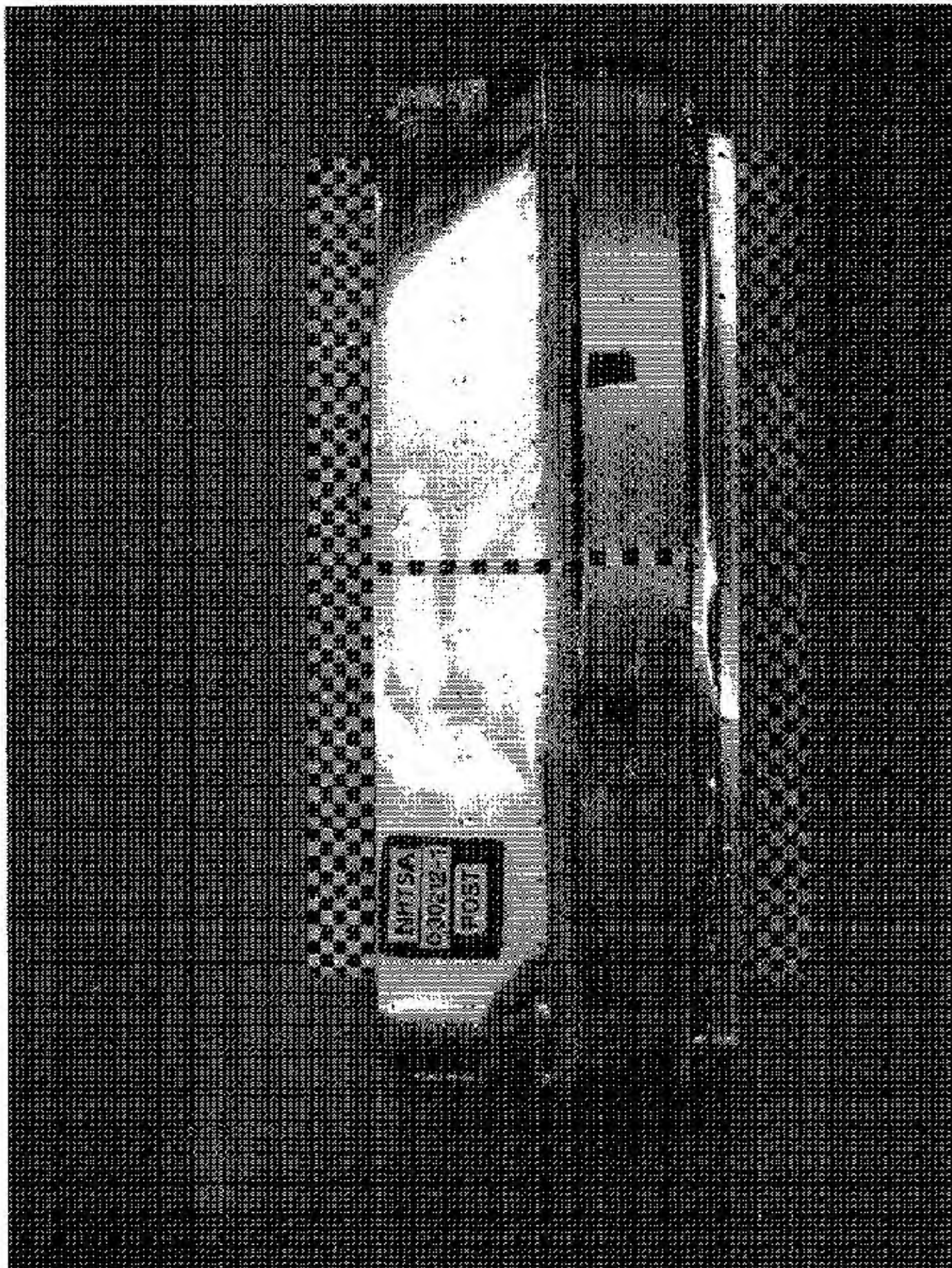


Figure A-8 Post-Test Frontal View of Impactor Face

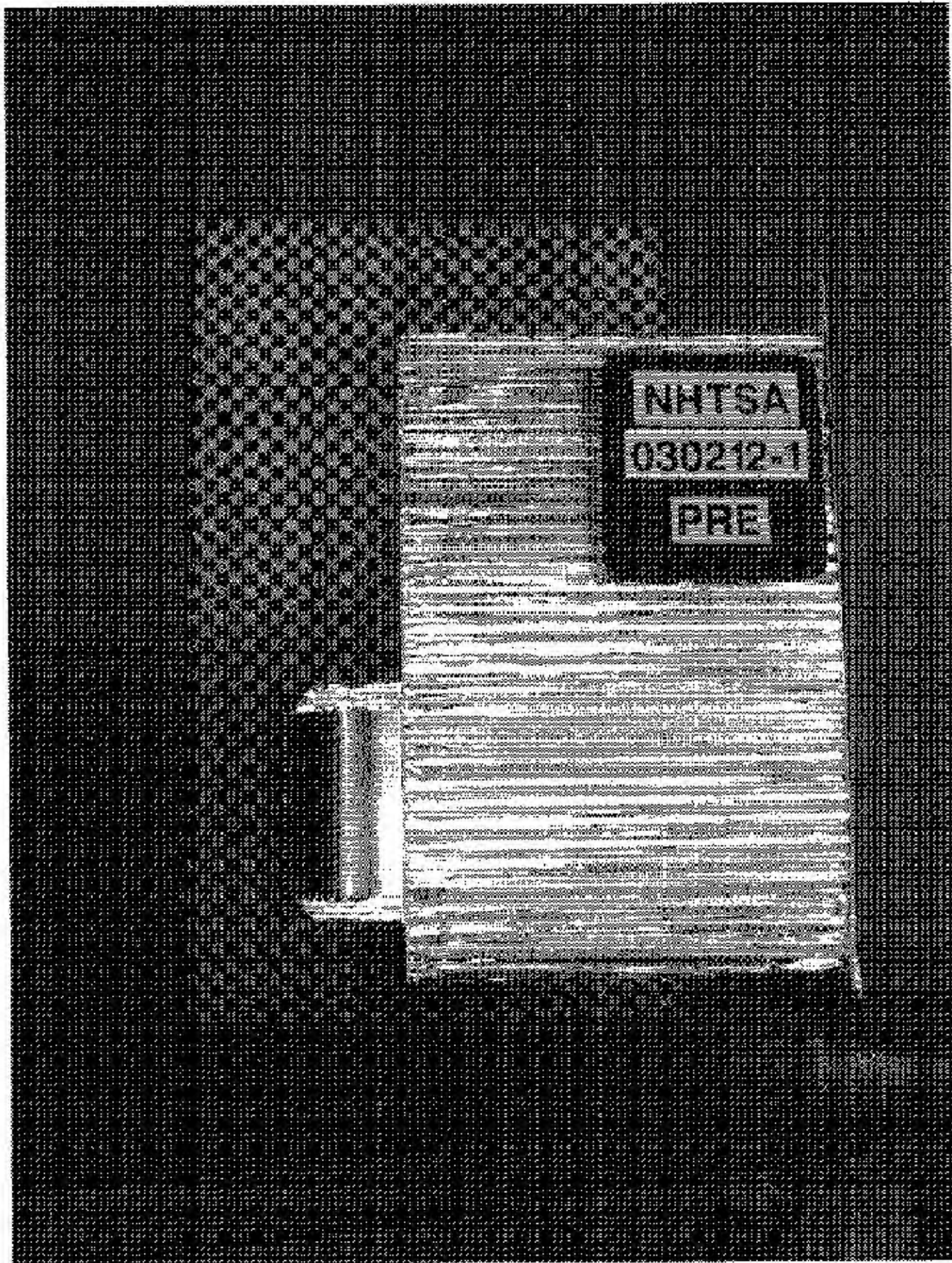


Figure A-9 Pre-Test Left Side View of Impactor Face

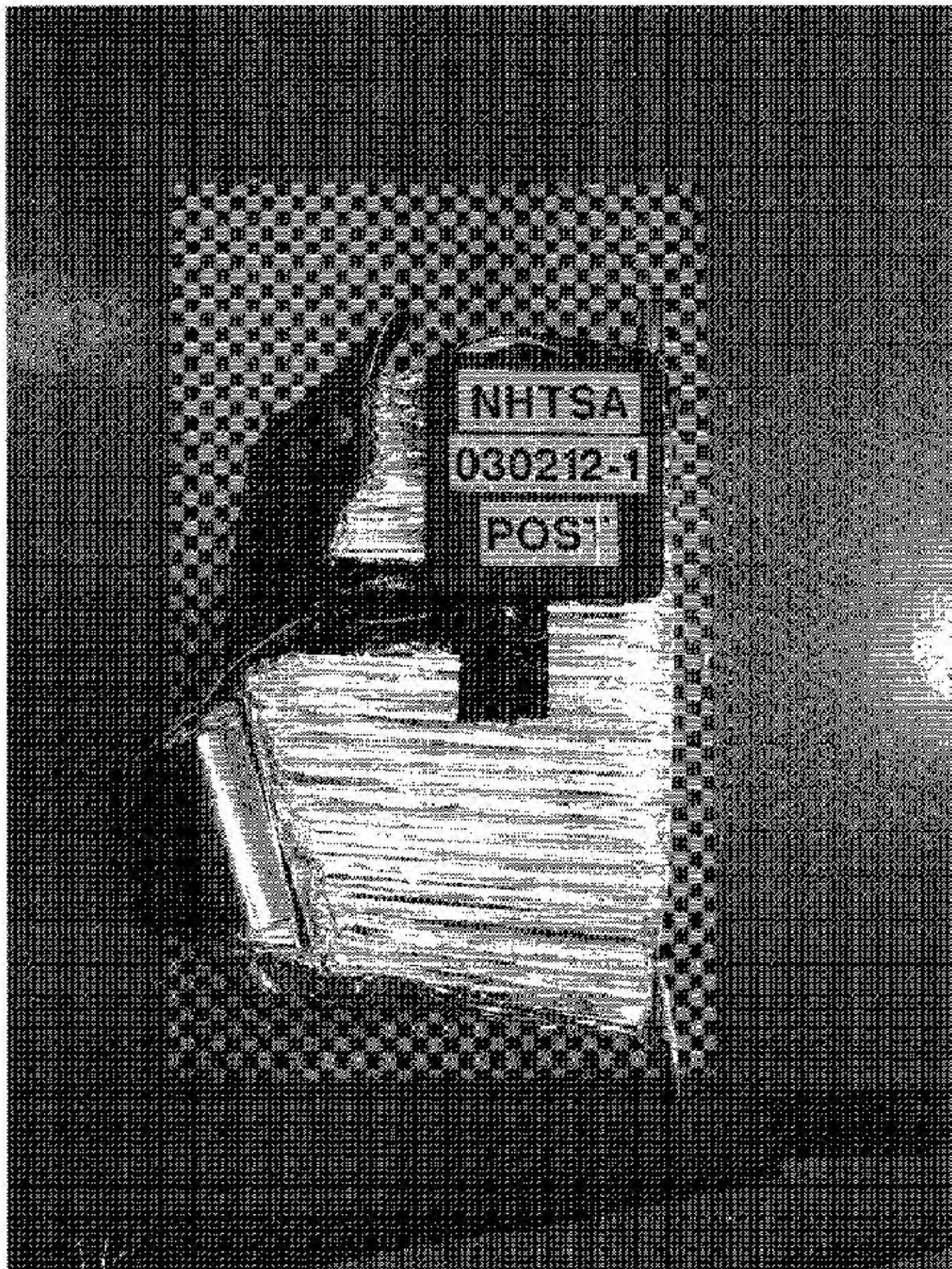


Figure A-10 Post-Test Left Side View of Impactor Face

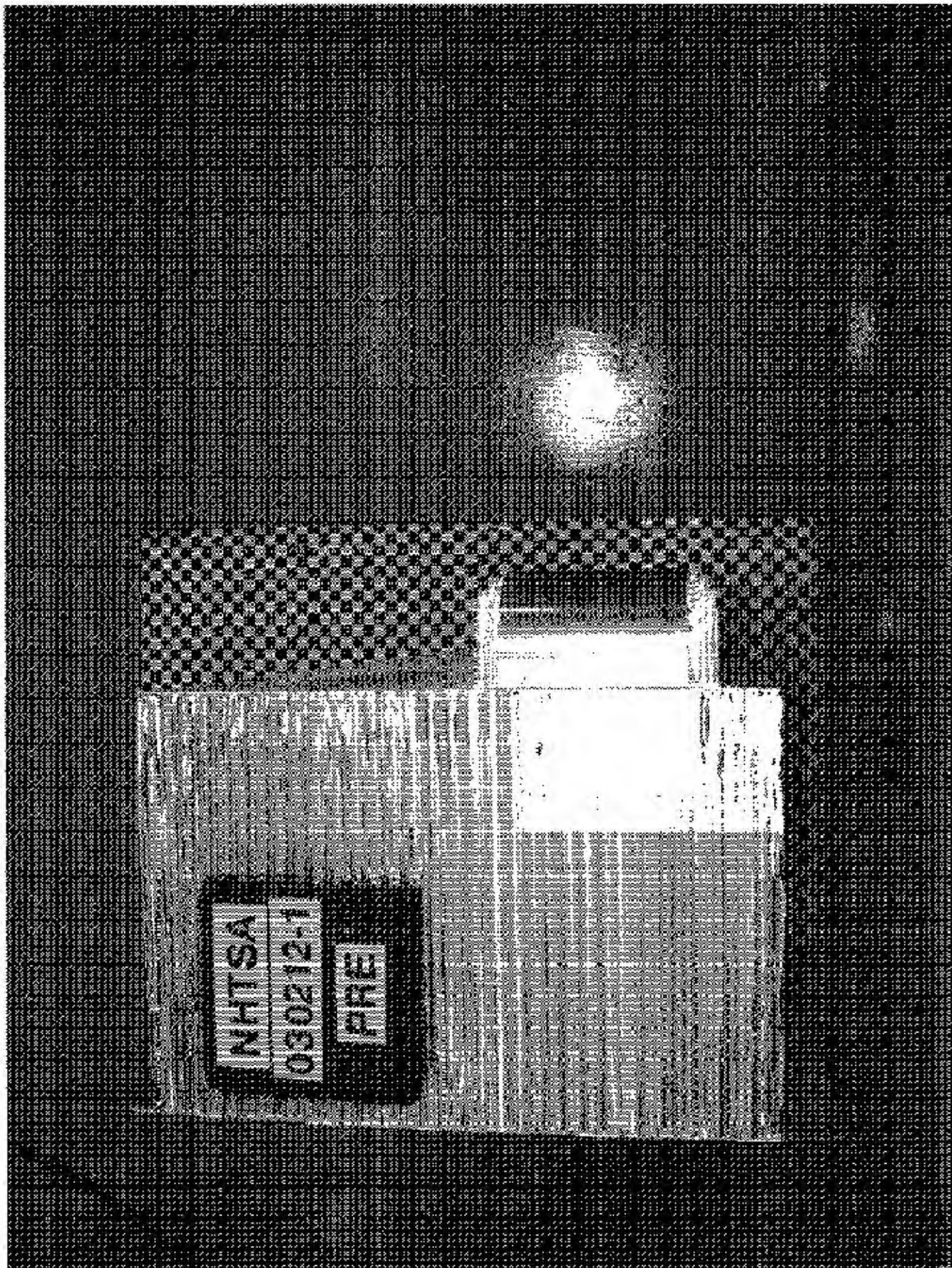


Figure A-11 Pre-Test Right Side View of Impactor Face

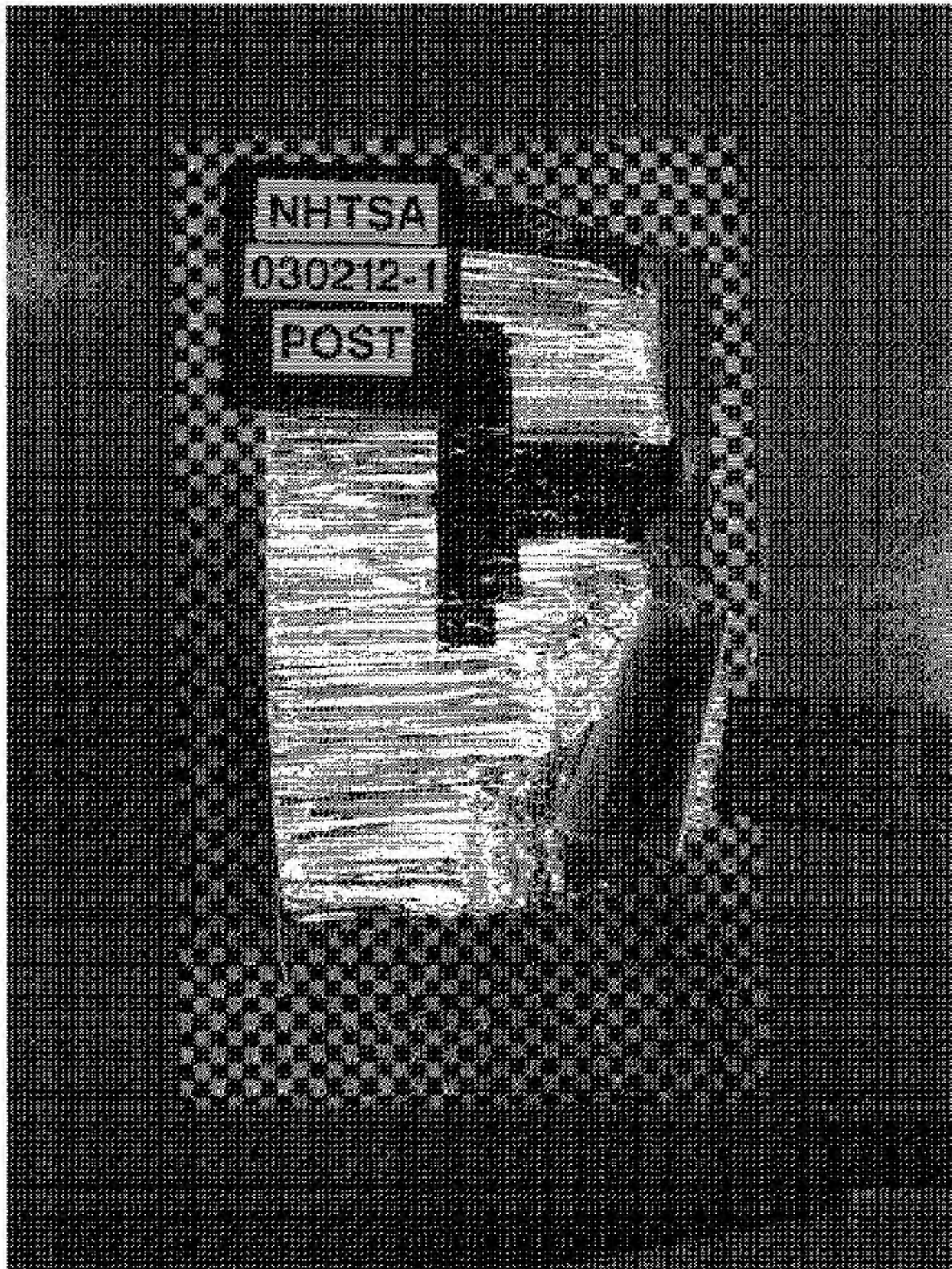


Figure A-12 Post-Test Right Side View of Impactor Face

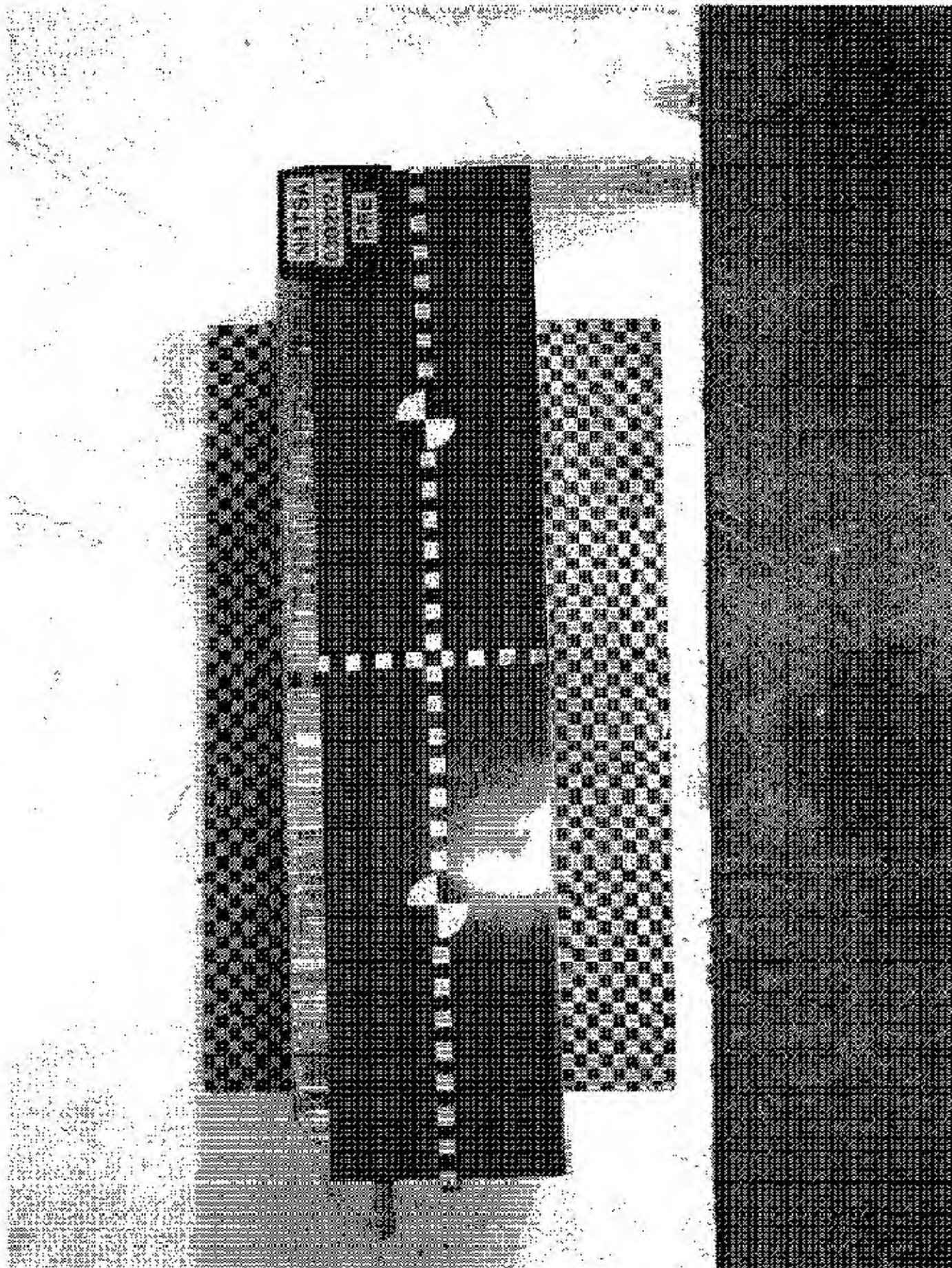


Figure A-13 Pre-Test Top View of Impactor Face

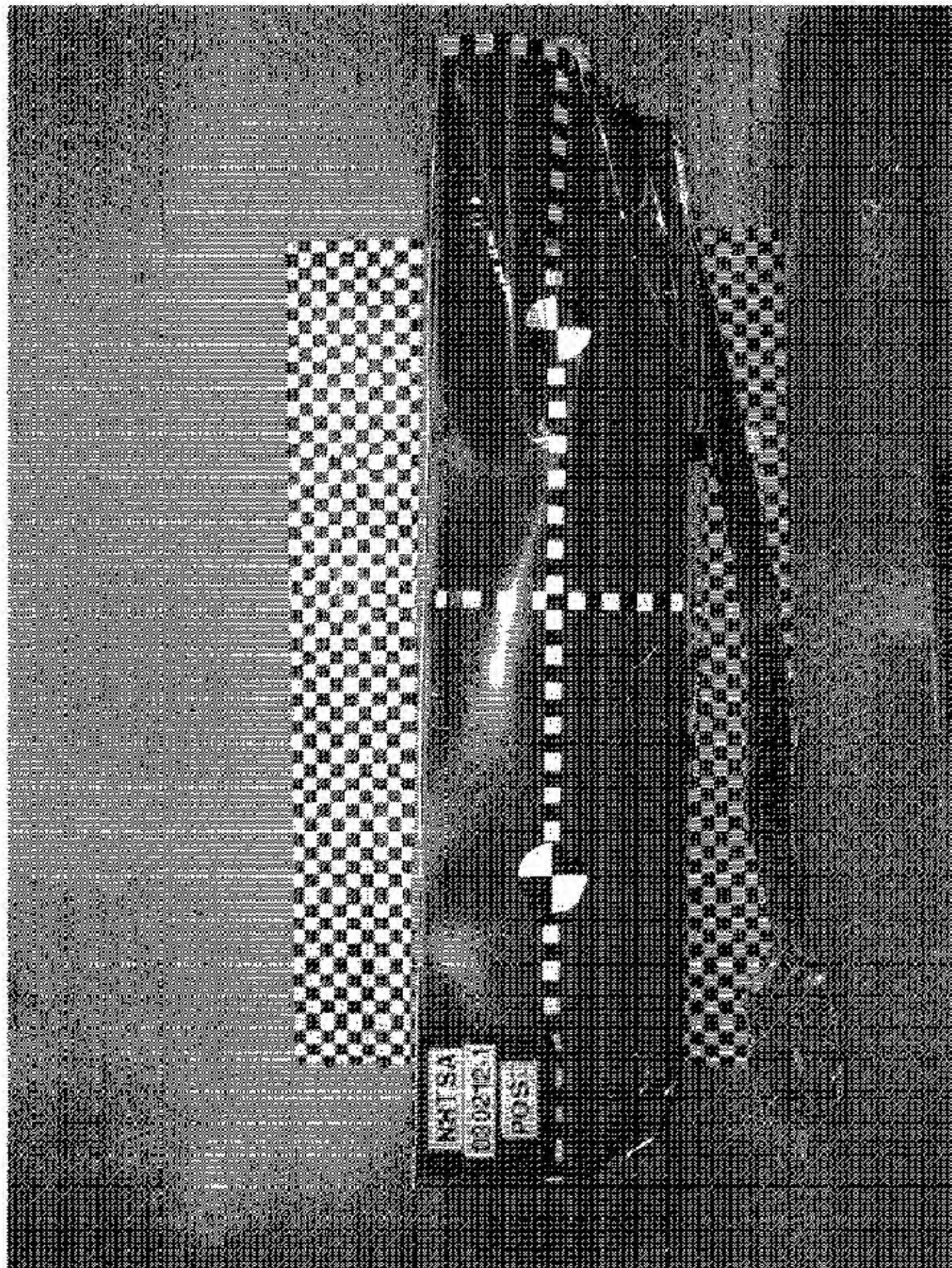


Figure A-14 Post-Test Top View of Impactor Face

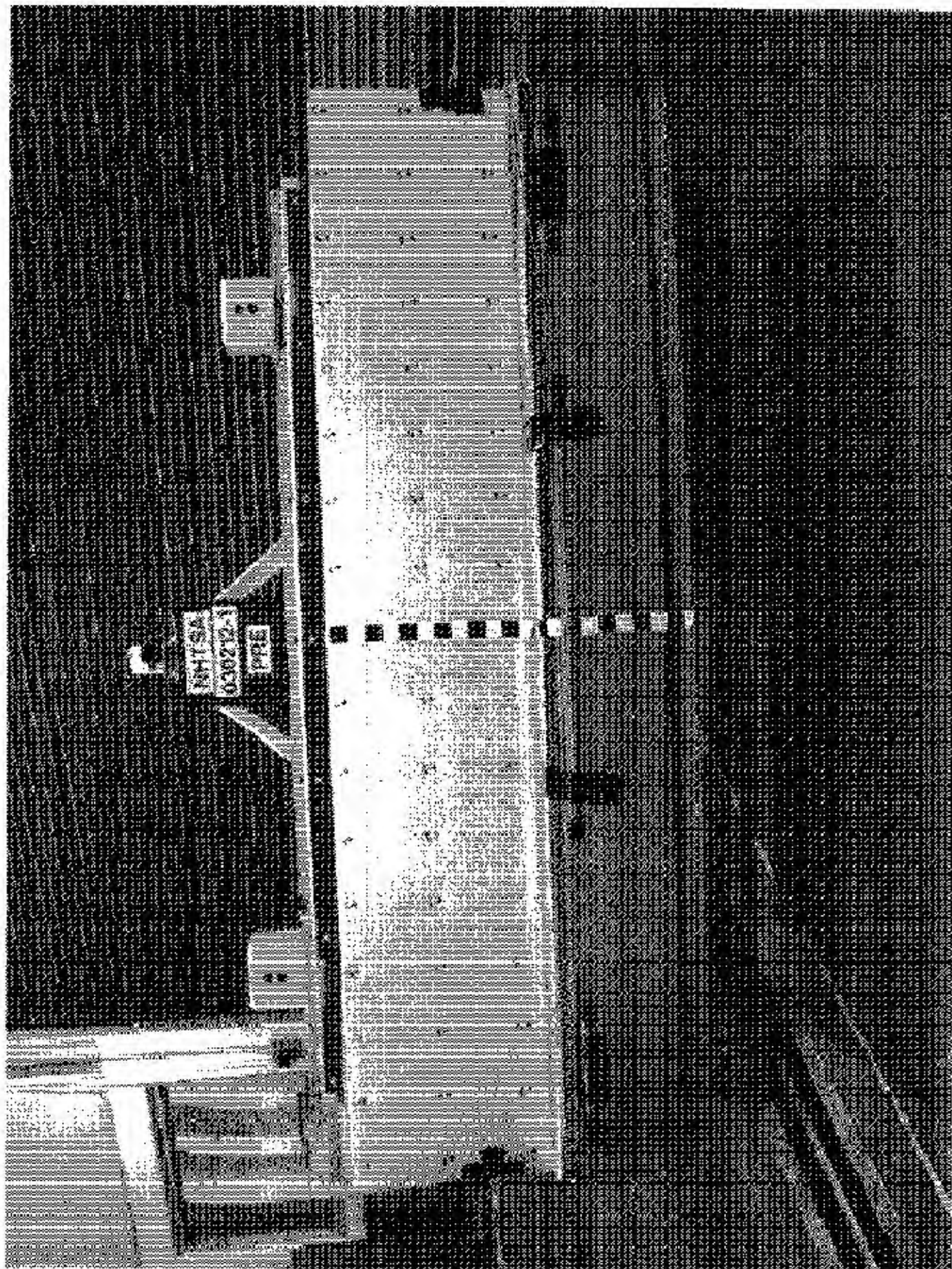


Figure A-13 Pre-Test View of MDR Showing Contact Switches in Place



Figure A-16 Pre-Test Overhead View of MDR Aligned with Vehicle

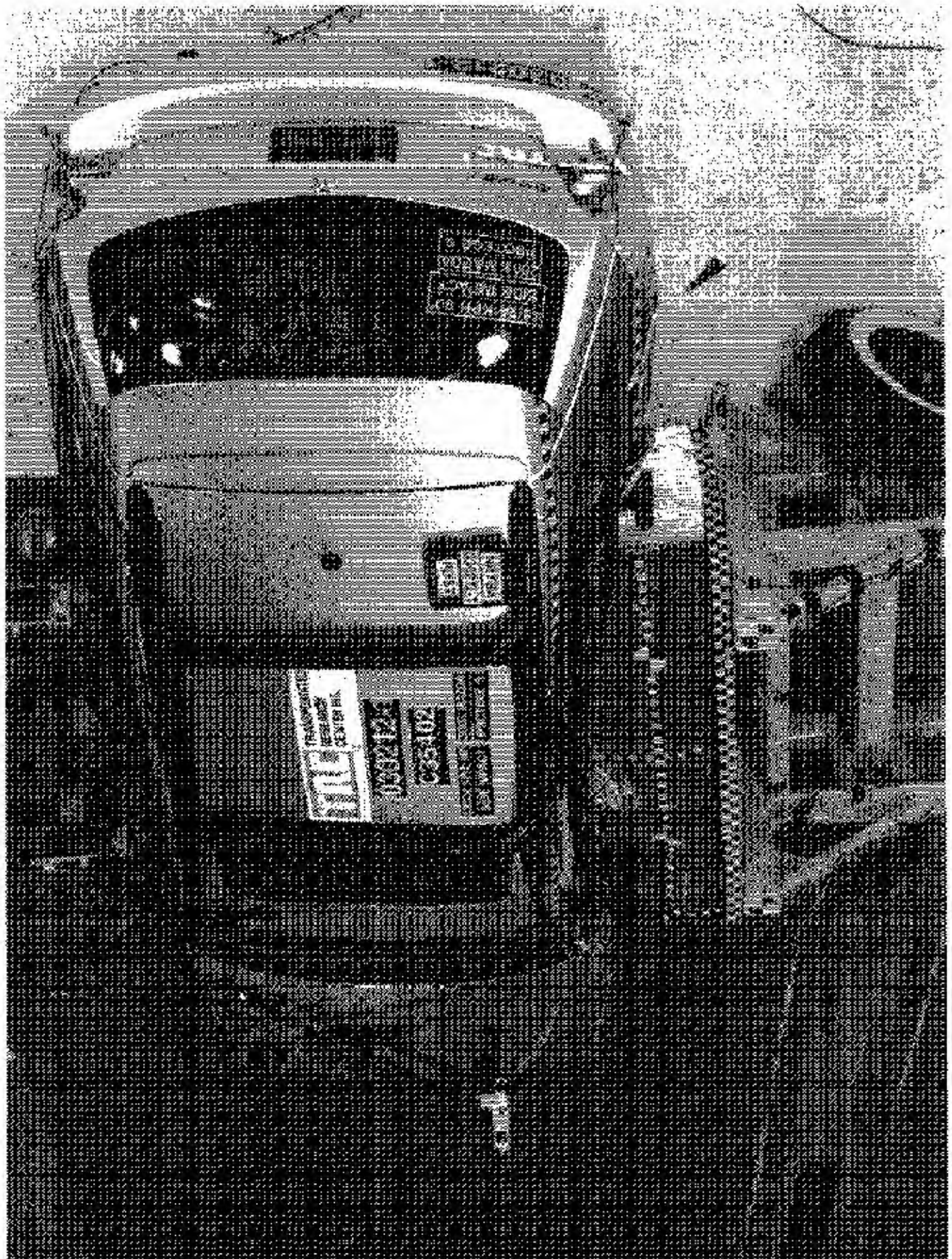


Figure A-17 Post-Test Overhead View of MDB and Vehicle

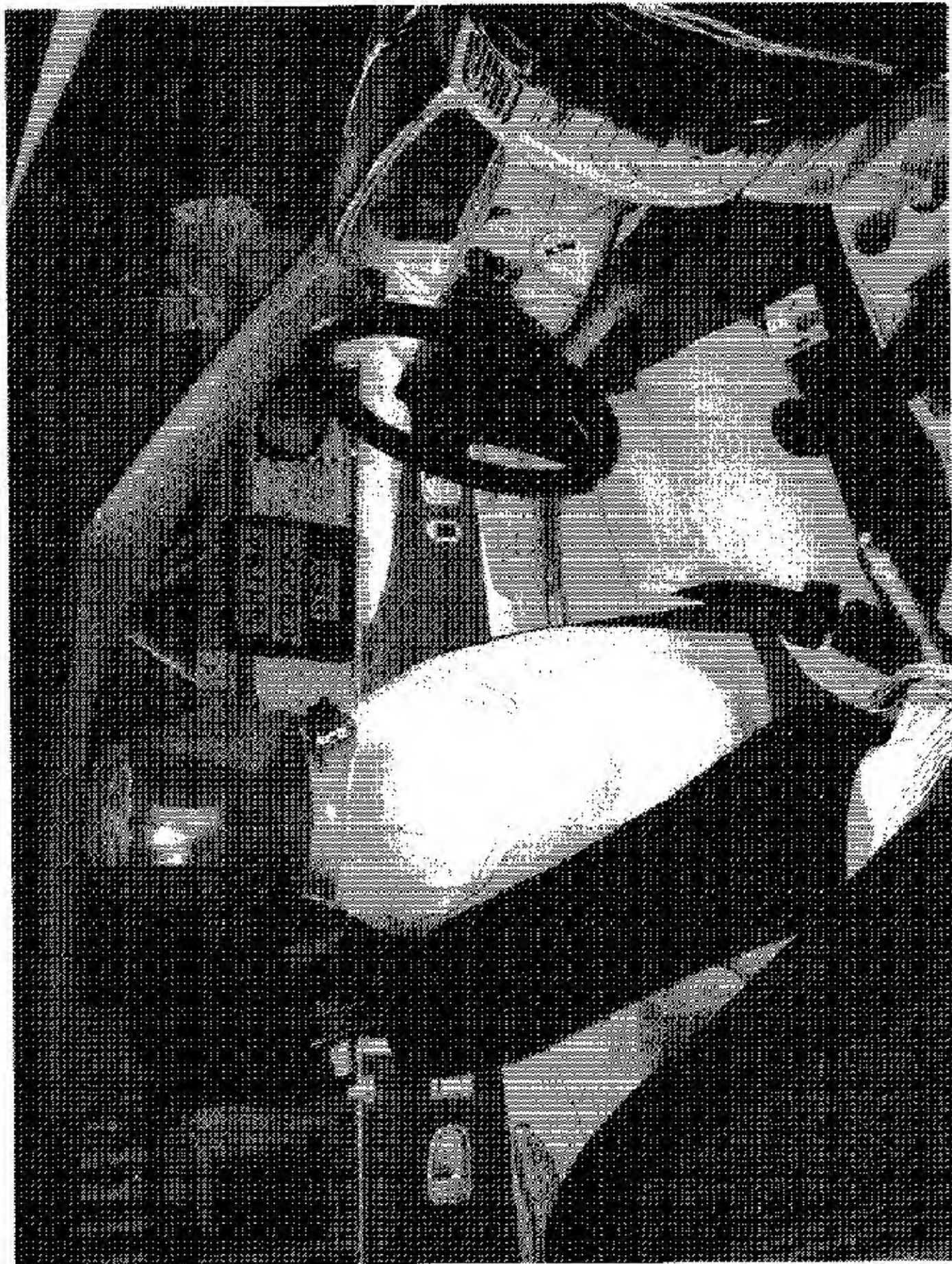


Figure A-18 Pre-Test Right Occupant Compartment View of Front SID



Figure A-19 Post-Test Right Occupant Compartment View of Front SID



Figure A-20 Pre-Test Right Occupant Compartment View of Rear SID

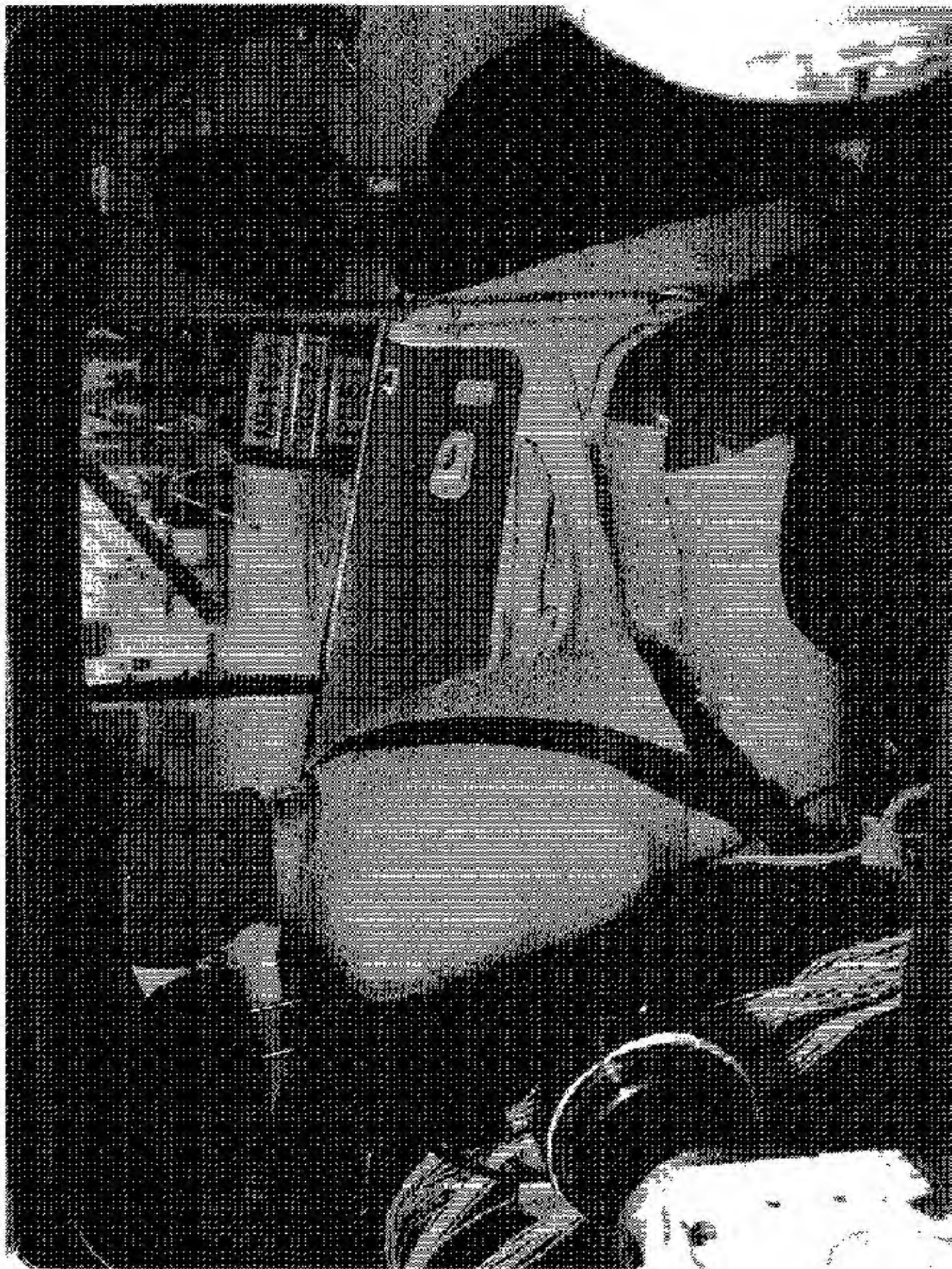


Figure A-21 Post-Test Right Occupant Compartment View of Rear SID

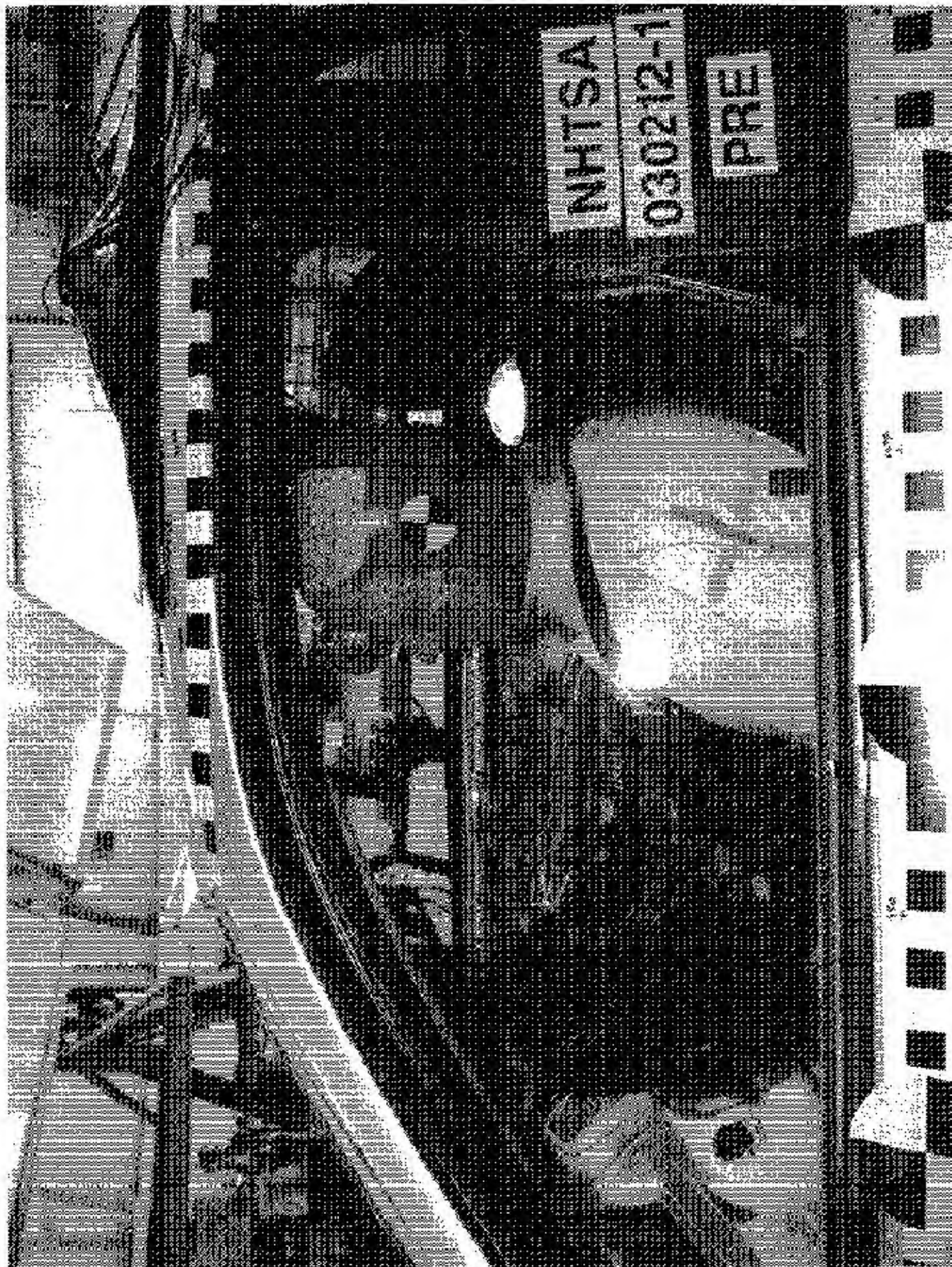


Figure A-22 Pre-Test Left View of Front SID

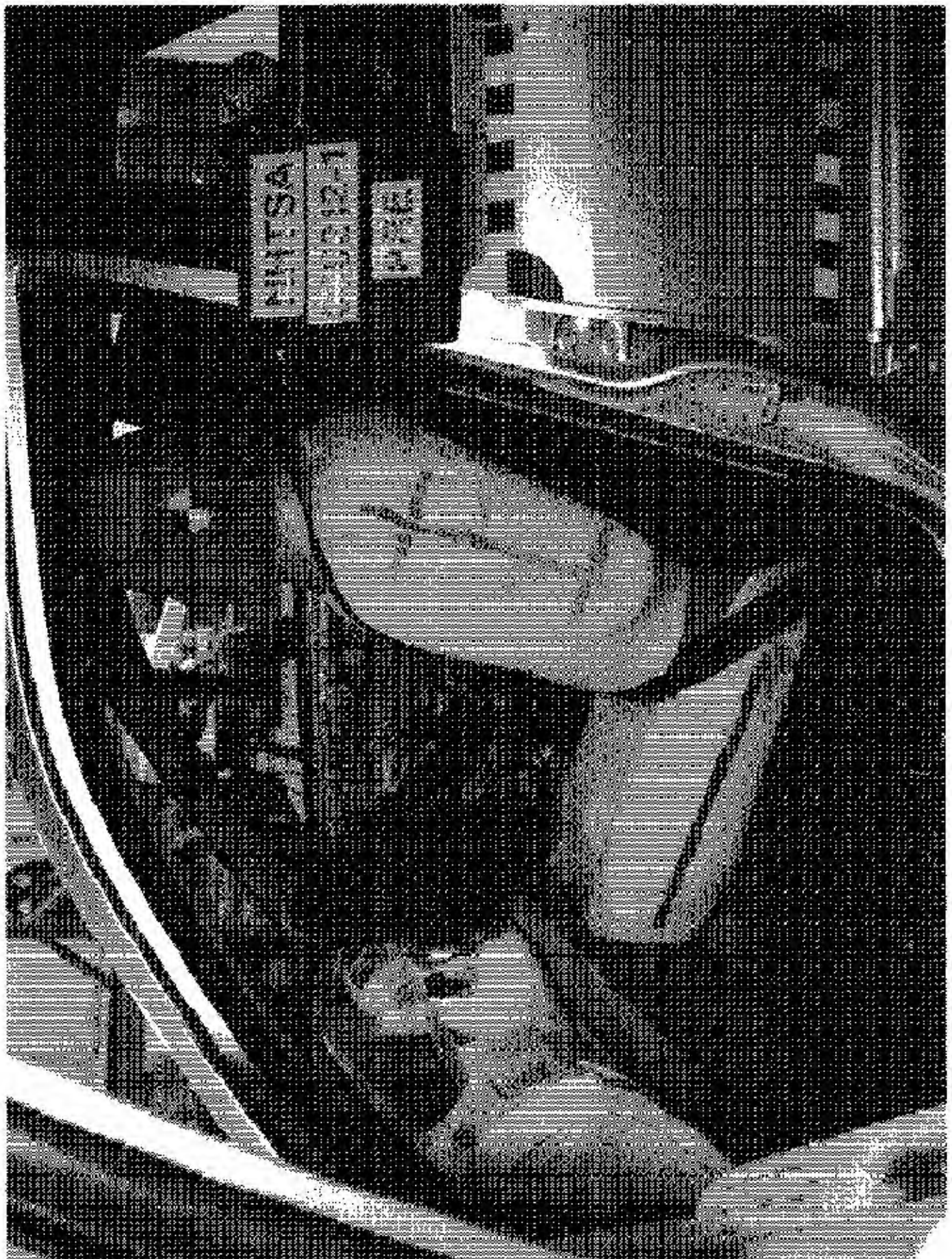


Figure A-23 Pre-Test Left View of Front SID and Belt Position

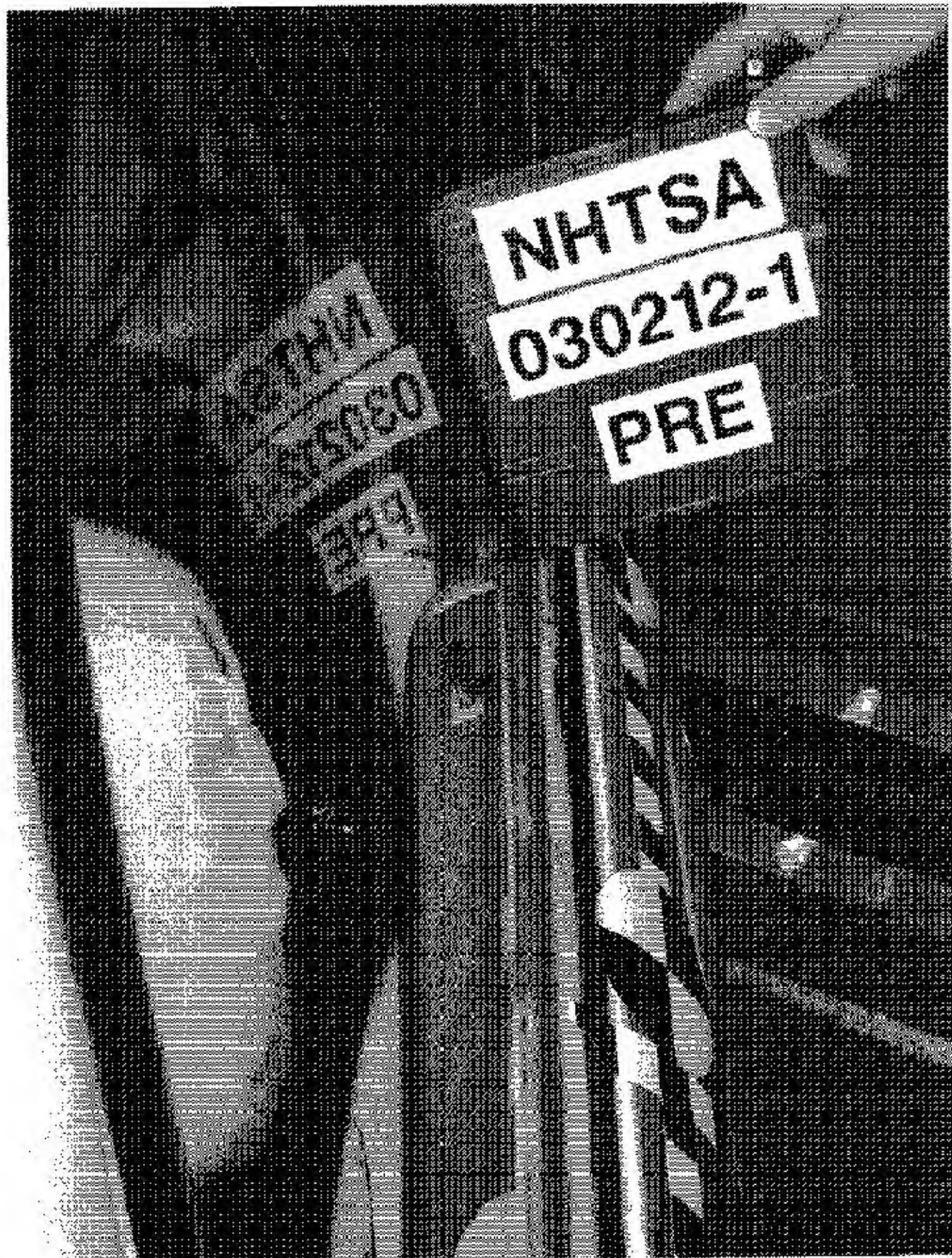


Figure A-14 Pre-Test Left View of Front SID and Door Clearance



Figure A-25 Post-Test Left View of Front SID and Door Clearance

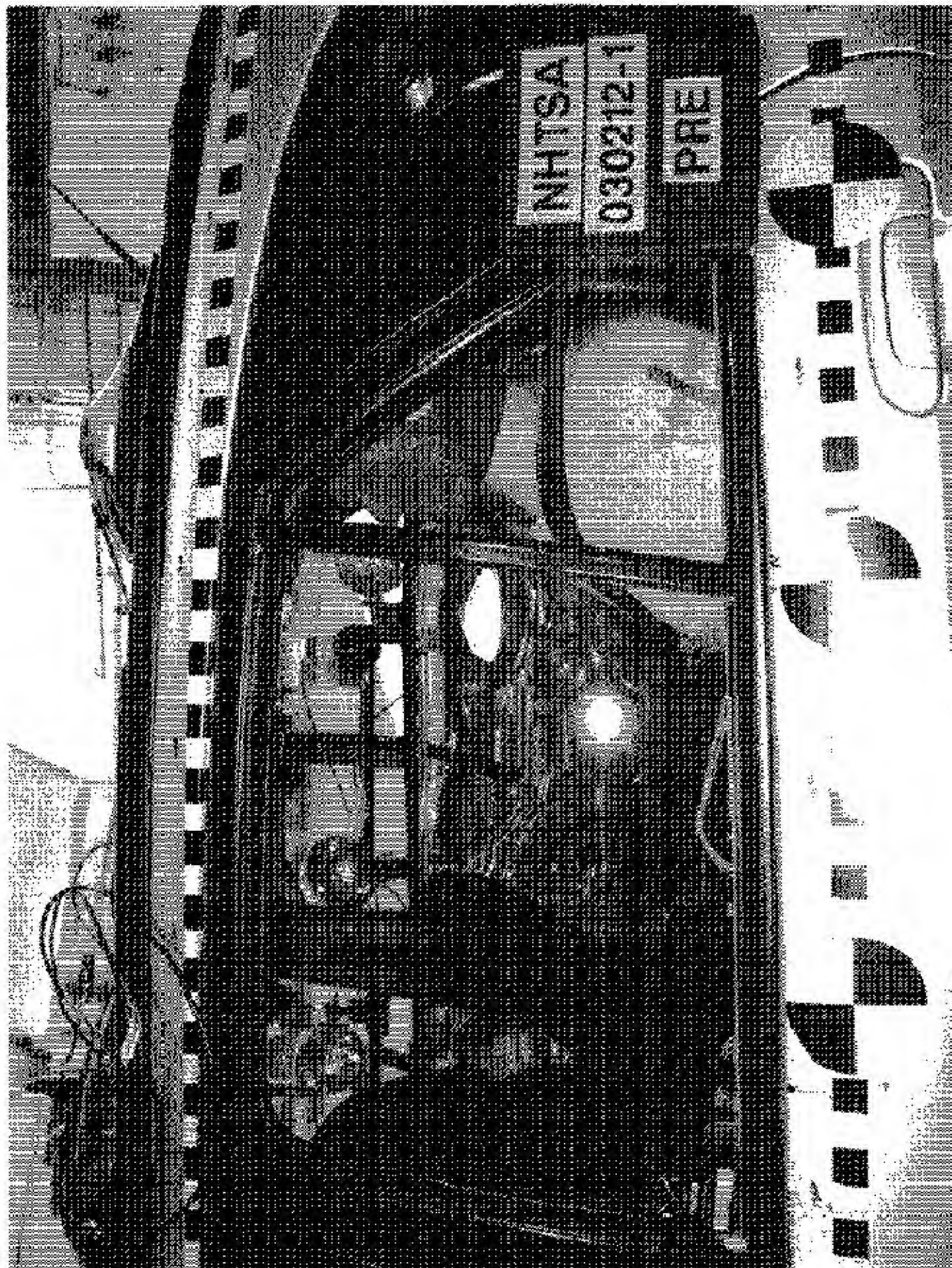


Figure A-26 Pre-Test Left View of Rear SID



Figure A-27 Pre-Test Left View of Rear SID and Belt Position

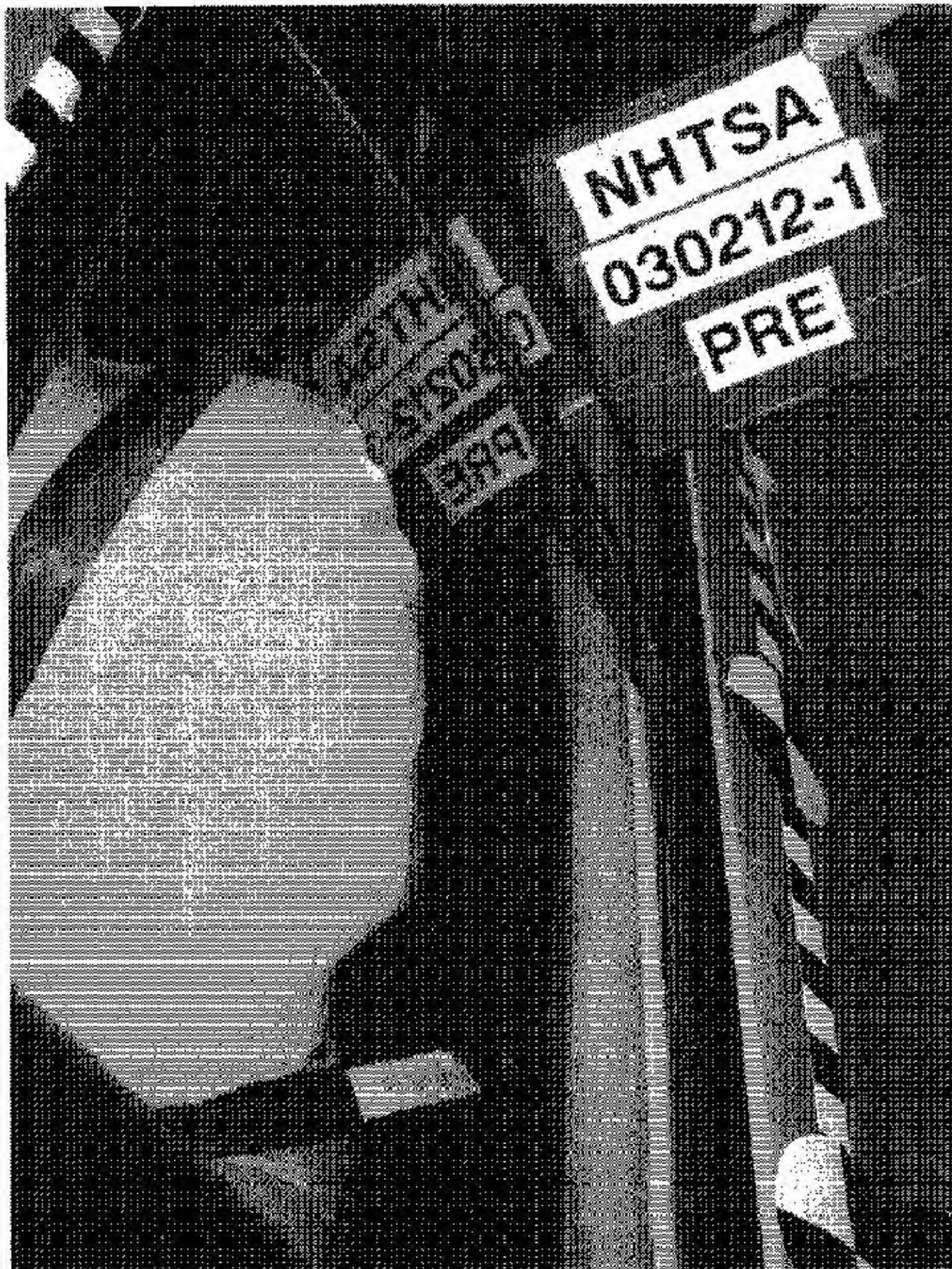


Figure A-28 Pre-Test Left View of Rear SID and Door Clearance



Figure A-29 Post-Test Left View of Rear SID and Door Clearance



Figure A-30 Pre-Test Interior of Front Door



Figure A-31 Post-Test Interior of Front Door Showing SID Impact Locations



Figure A-32 Post-Test Front SID Contact



Figure A-33 Pre-Test Interior of Rear Panel

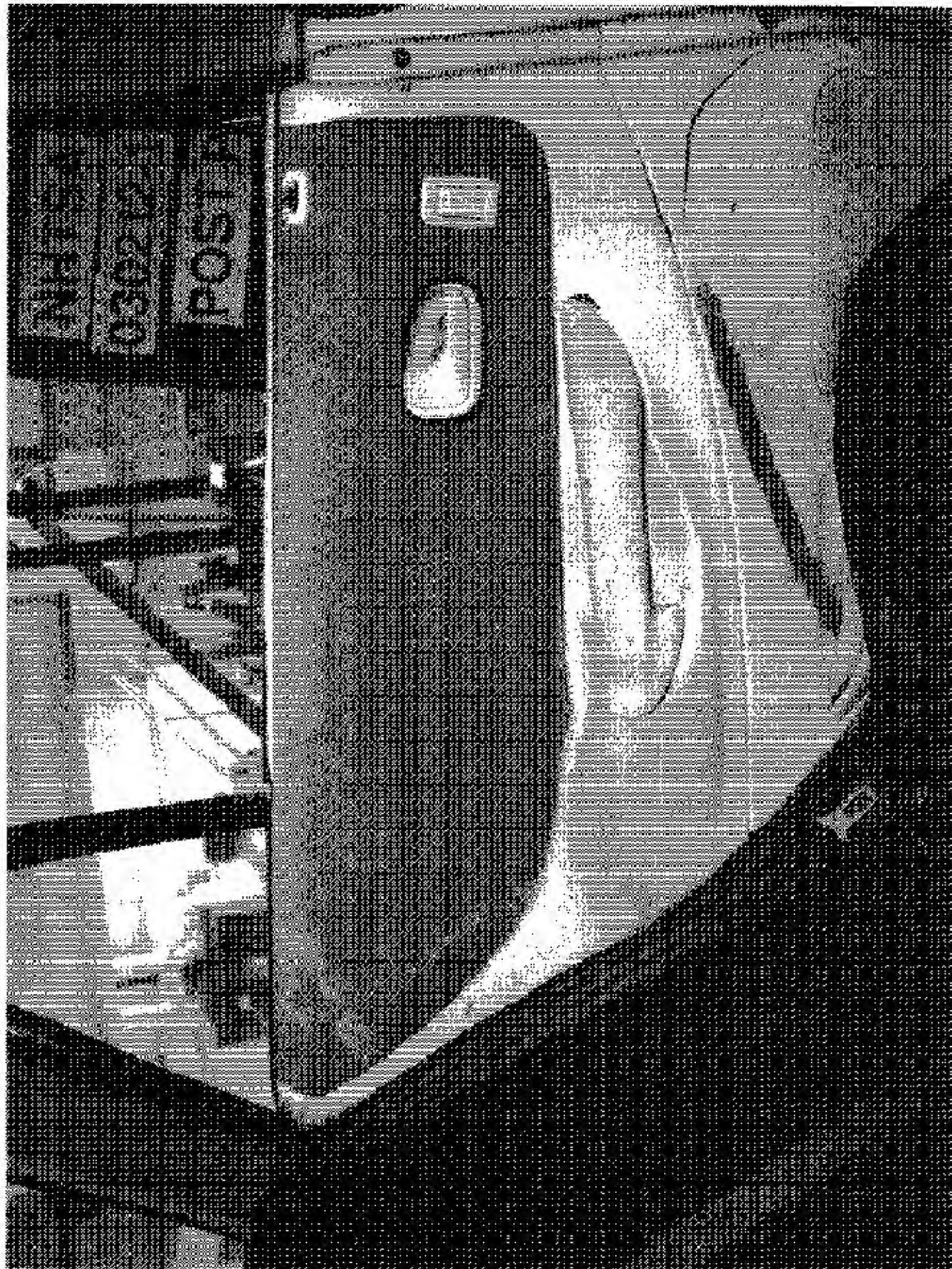


Figure A-34 Post-Test Interior of Rear Panel Showing SID Impact Locations



Figure A-35 Post-Test Rear SID Contact - View 1



Figure A-36 Post-Test Rear SID Contact - View 2

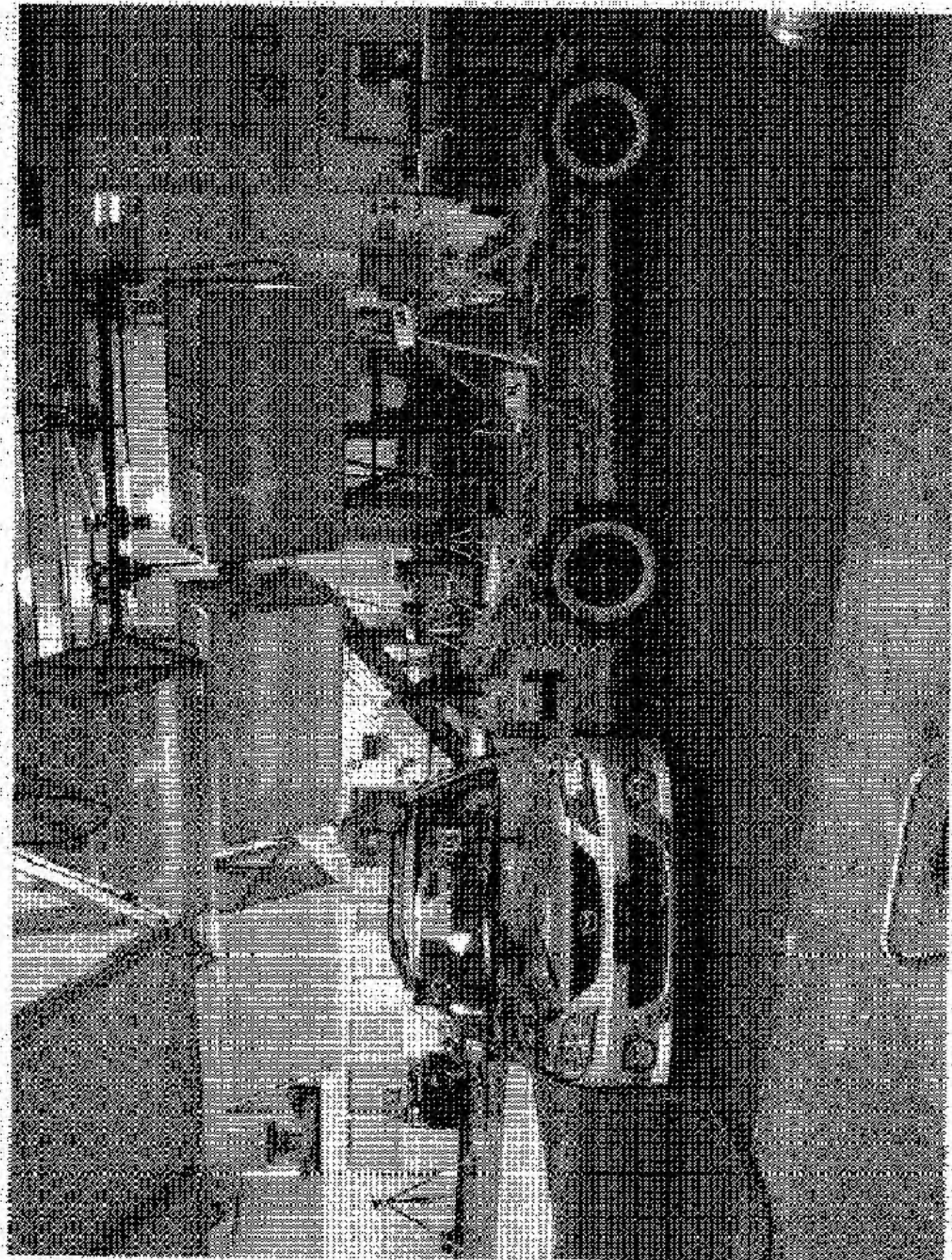


Figure A-37 Pre-Test Left Side View of MDB with Impactor Face in Position



Figure A-38 Pre-Test Primary Impact Point View



Figure A-39 Post-Test Primary Impact Point View

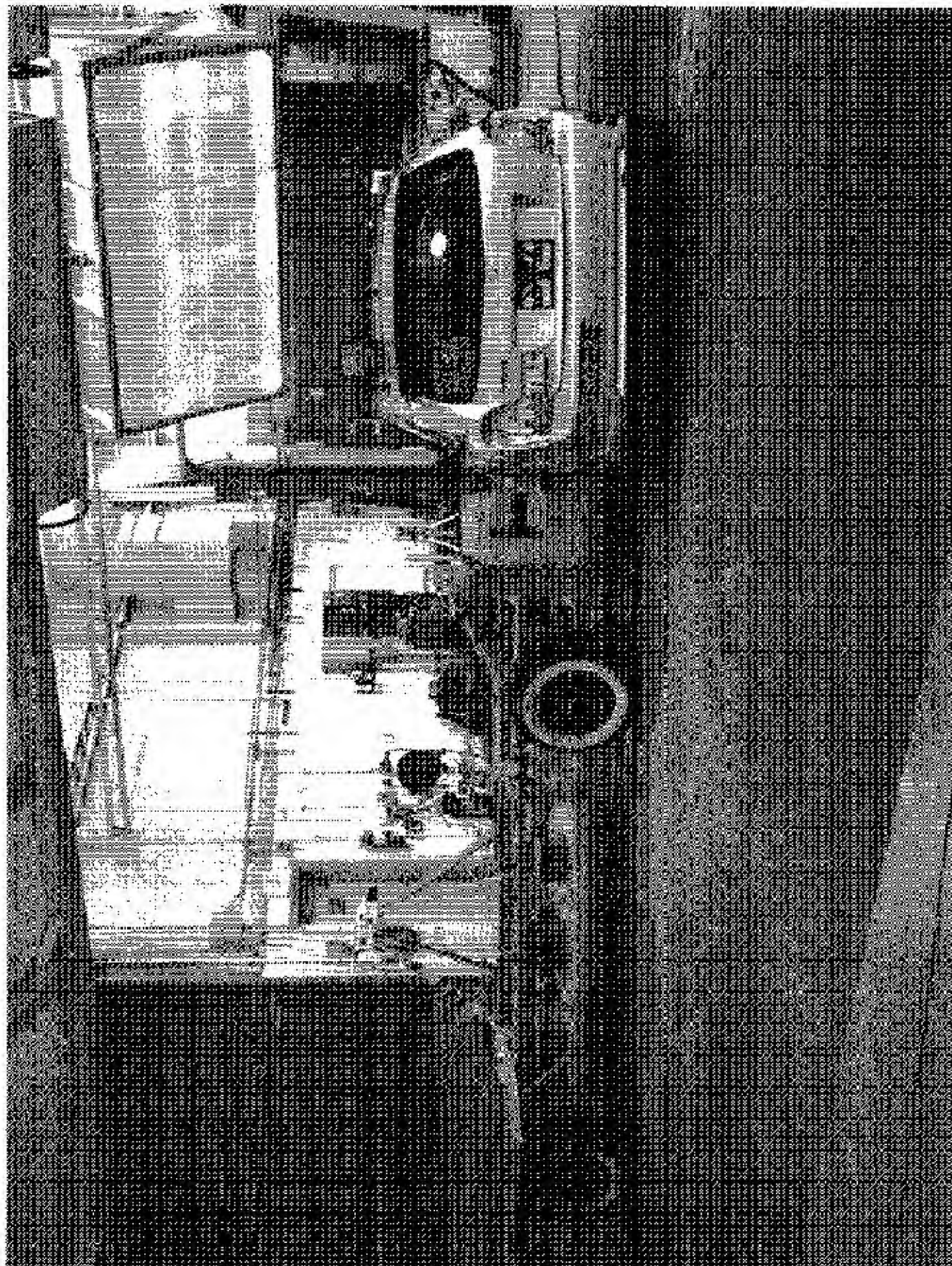


Figure A-40 Pre-Test Right Side View of MDB with Impactor Face in Position



Figure A-41 Pre-Test Secondary Impact Point View

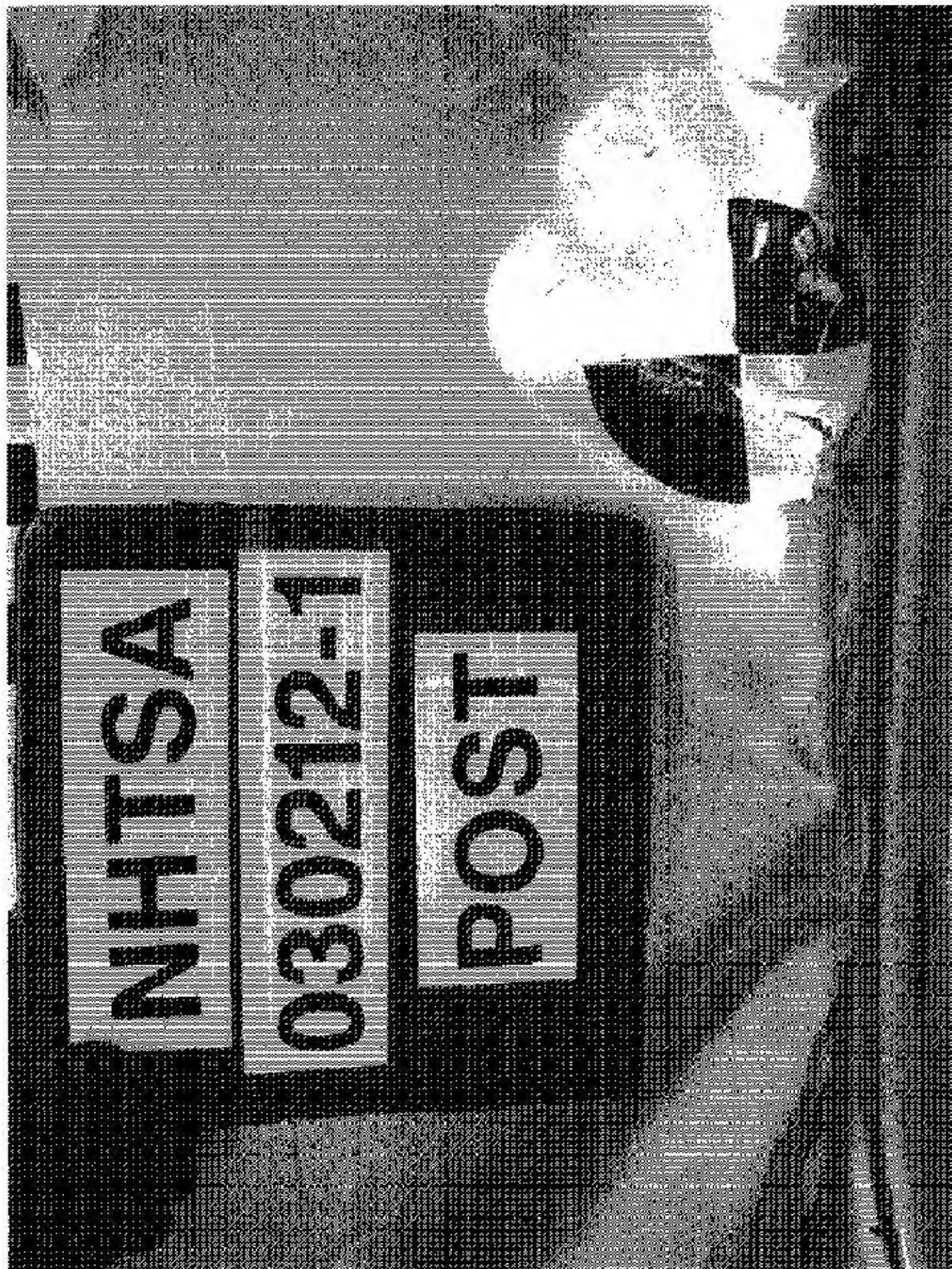


Figure A-42 Post-Test Secondary Impact Point View

VEHICLE CAPACITY WEIGHT		CAPACITE PORTUEUSE DU VEHICULE	
FRONT SEAT		SIÈGE AVANT	
REAR SEAT		SIÈGE ARRIÈRE	
TOTAL		TOTAL	
TIRE INFLATION PRESSURE	FRONT/AV	REAR/AR	
PRESSION DE GONFLAGE DES	220	220	
PNEUS (kg/cm ²) (p.s.i.) (k.p.a.)	(2.2) (32) (2.2)	(2.2) (32) (2.2)	
TIRE SIZE		P195/50R15 82V	
TAILLE DES PNEUS			

Figure A-44 Pre-Test Vehicle Recommended Tire Pressure Label View

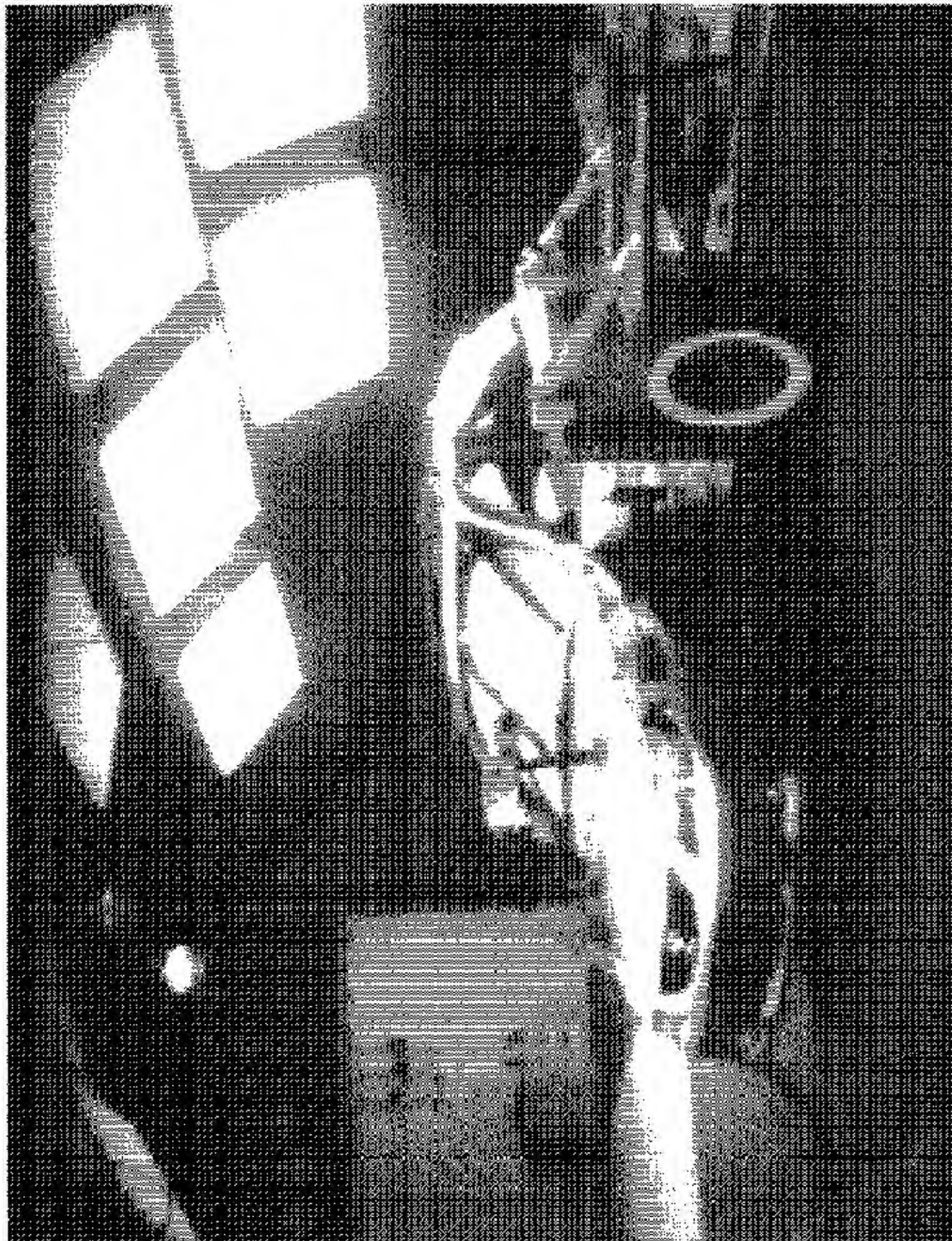


Figure A-45 Impact Event



Figure A-46 Pre-Test Fuel Cap

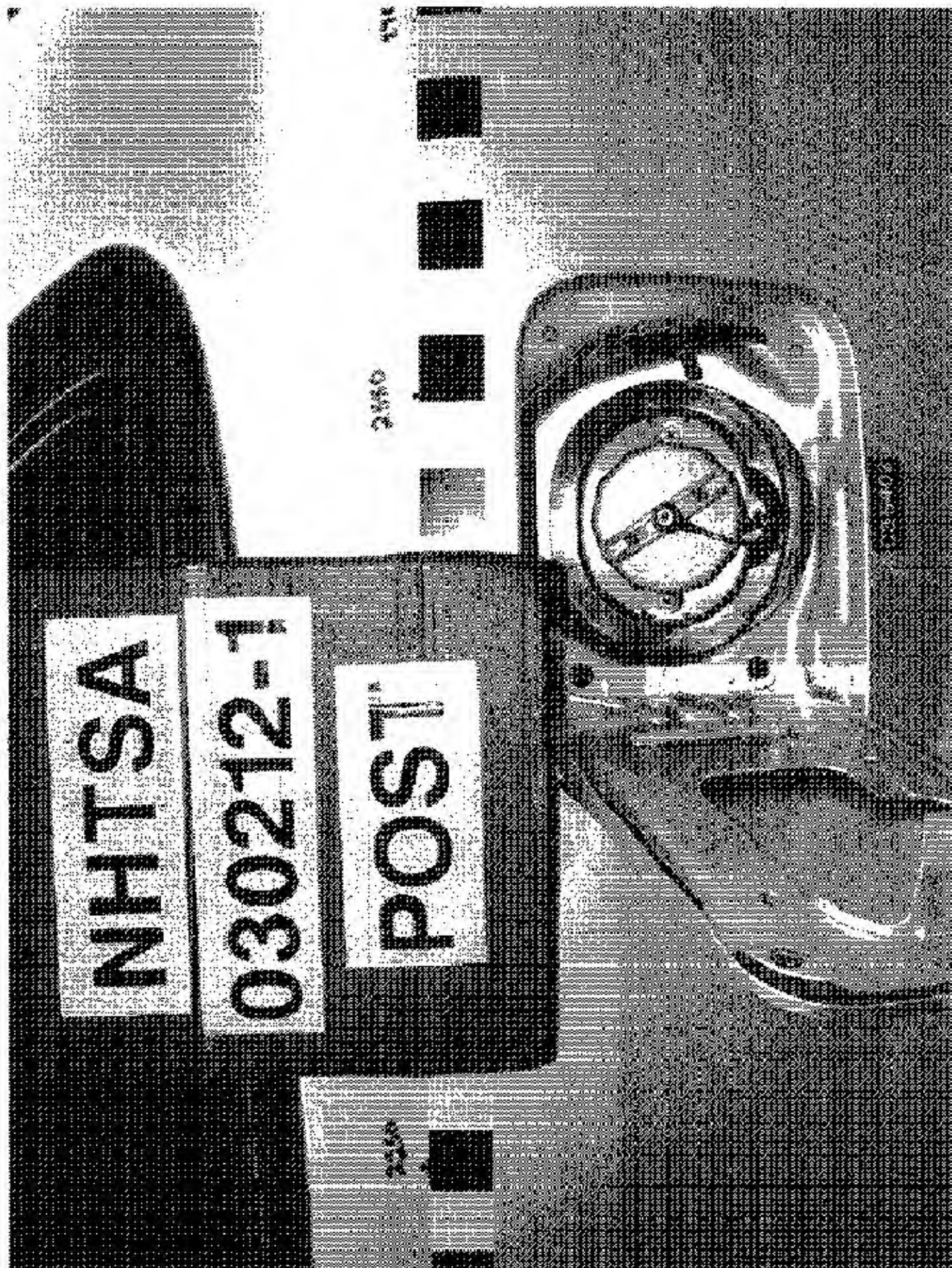


Figure A-47 Post-Test Fuel Cap

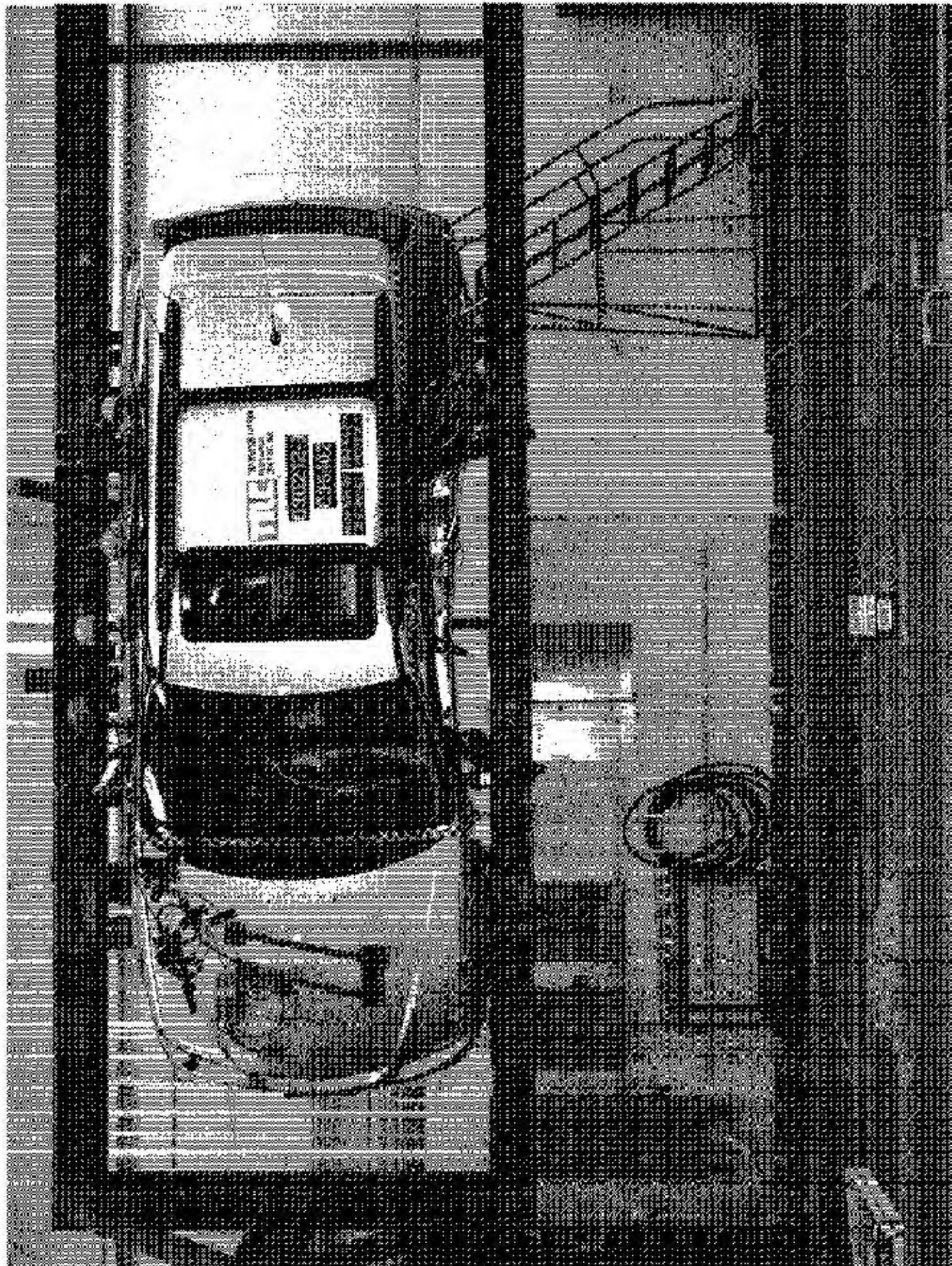


Figure A-48 FMVSS 301 Rollover View at 90°



Figure A-49 FMYSS 301 Rollover View at 180°

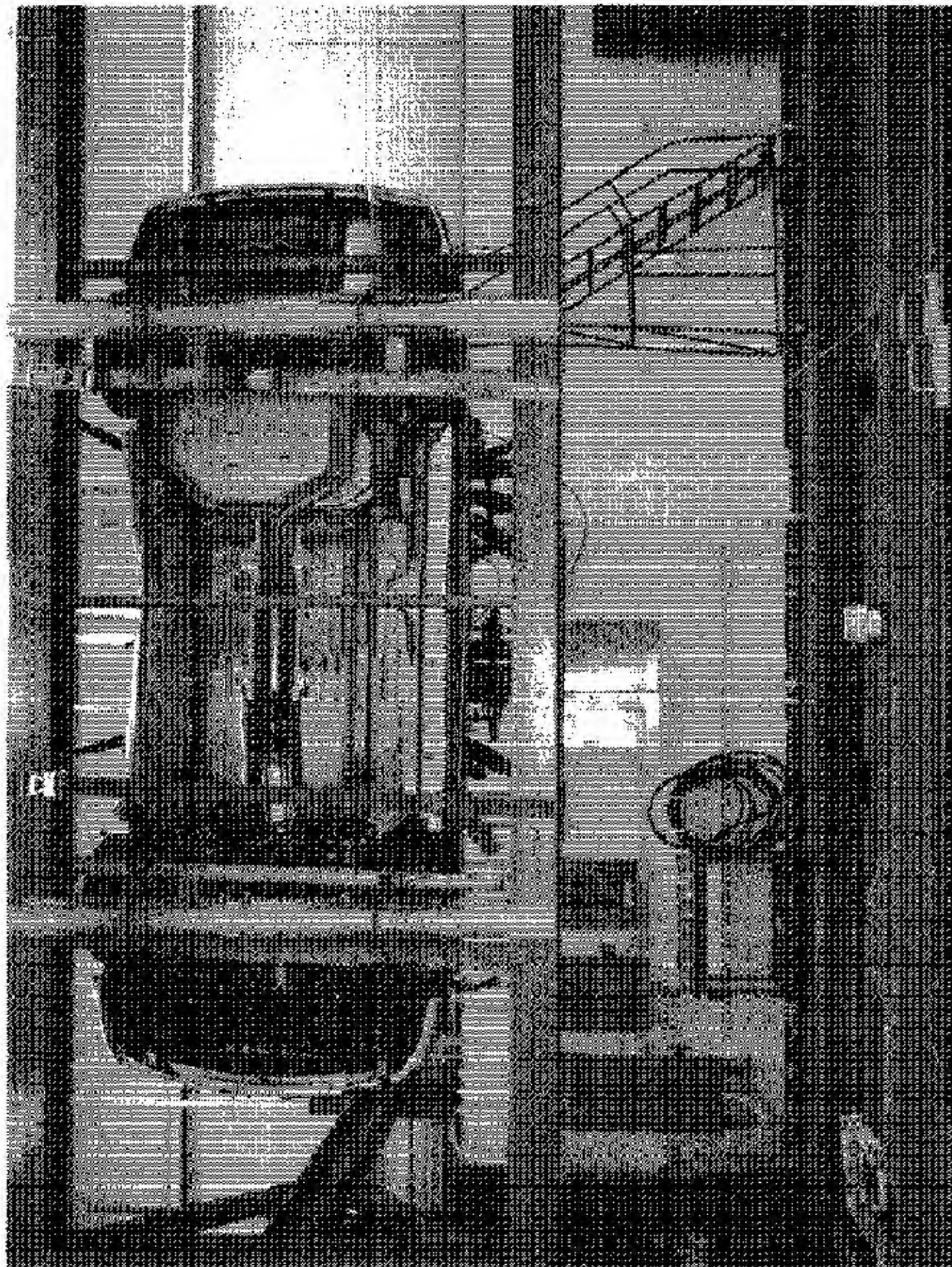


Figure A-50 FMVSS 301 Rollover View at 270°

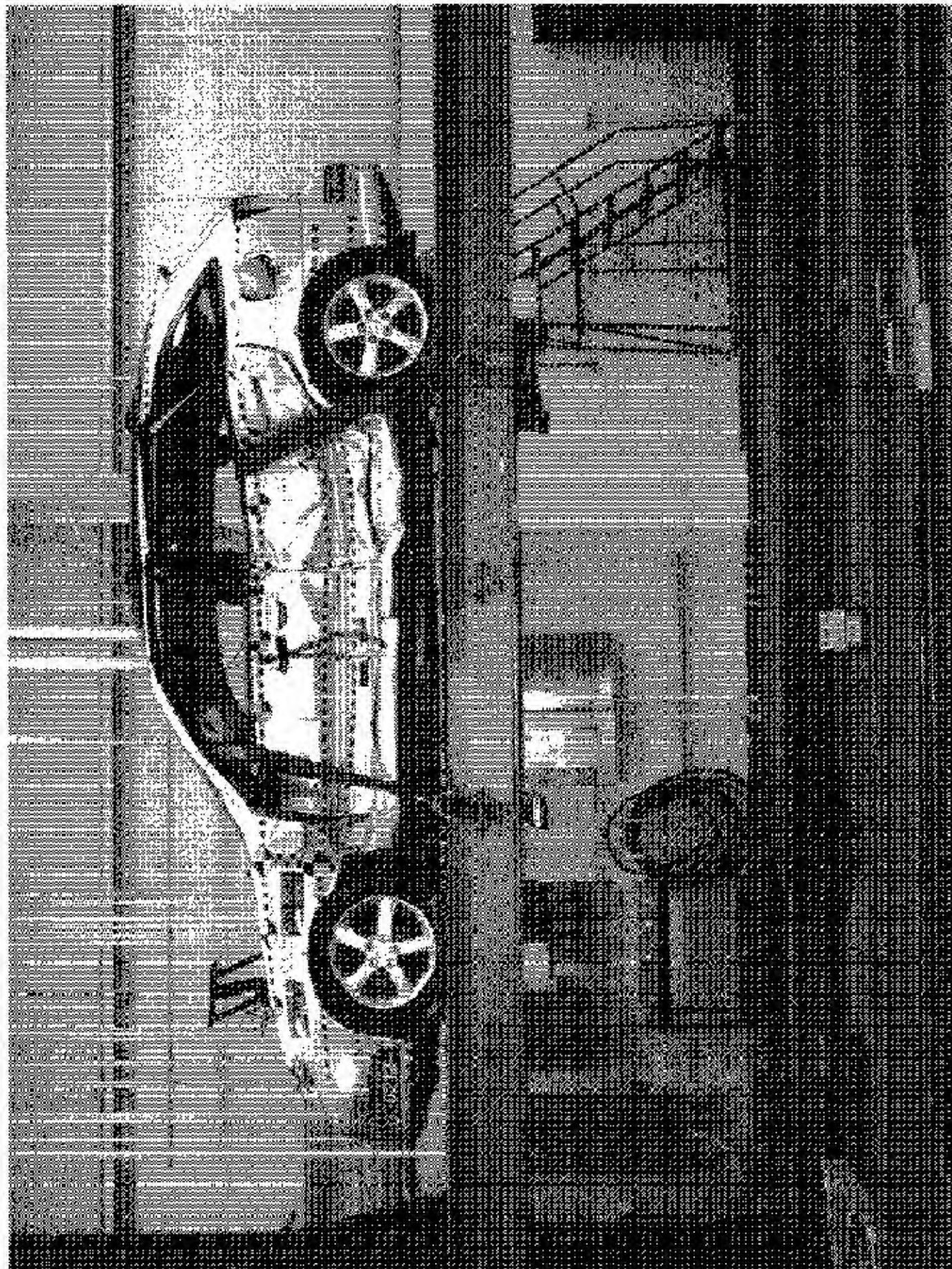


Figure A-51 FMVSS 301 Rollover View at 360°

Appendix B

Data Plots

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Driver and Passenger Dummy Instrumentation Plots
Acceleration Data - Filter Class 1000
Integration Data - Filter Class 180

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2	Driver Upper Rib Y-Axis Velocity	B-10
3	Driver Lower Rib Y-Axis Acceleration	B-11
4	Driver Lower Rib Y-Axis Velocity	B-12
5	Driver Lower Spine Y-Axis Acceleration	B-13
6	Driver Lower Spine Y-Axis Velocity	B-14
7	Driver Pelvis Y-Axis Acceleration	B-15
8	Driver Pelvis Y-Axis Velocity	B-16
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11	Left Rear Passenger Lower Rib Y-Axis Acceleration	B-19
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13	Left Rear Passenger Lower Spine Y-Axis Acceleration	B-21
14	Left Rear Passenger Lower Spine Y-Axis Velocity	B-22
15	Left Rear Passenger Pelvis Y-Axis Acceleration	B-23
16	Left Rear Passenger Pelvis Y-Axis Velocity	B-24

Driver and Passenger Dummy Instrumentation Plots
Acceleration Data - Filter Class 1000 - Redundant
Integration Data - Filter Class 180 - Redundant

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
17	Driver Upper Rib Y-Axis Redundant Acceleration	B-26
18	Driver Upper Rib Y-Axis Redundant Velocity	B-27
19	Driver Lower Rib Y-Axis Redundant Acceleration	B-28
20	Driver Lower Rib Y-Axis Redundant Velocity	B-29
21	Driver Lower Spine Y-Axis Redundant Acceleration	B-30
22	Driver Lower Spine Y-Axis Redundant Velocity	B-31
23	Driver Pelvis Y-Axis Redundant Acceleration	B-32

Table of Data Plots (Continued)

Driver and Passenger Dummy Instrumentation Plots (Continued)

Acceleration Data - Filter Class 1000 - Redundant

Integration Data - Filter Class 180 - Redundant

24	Driver Pelvis Y-Axis Redundant Velocity	B-33
25	Left Rear Passenger Upper Rib Y-Axis Redundant Acceleration	B-34
26	Left Rear Passenger Upper Rib Y-Axis Redundant Velocity	B-35
27	Left Rear Passenger Lower Rib Y-Axis Redundant Acceleration	B-36
28	Left Rear Passenger Lower Rib Y-Axis Redundant Velocity	B-37
29	Left Rear Passenger Lower Spine Y-Axis Redundant Acceleration	B-38
30	Left Rear Passenger Lower Spine Y-Axis Redundant Velocity	B-39
31	Left Rear Passenger Pelvis Y-Axis Redundant Acceleration	B-40
32	Left Rear Passenger Pelvis Y-Axis Redundant Velocity	B-41

Test Vehicle Instrumentation Plots

Acceleration Data - Filter Class 60

Integration Data - Filter Class 180

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
33	Right Side Sill At Front Seat X-Axis Acceleration	B-43
34	Right Side Sill At Front Seat X-Axis Velocity	B-44
35	Right Side Sill At Front Seat Y-Axis Acceleration	B-45
36	Right Side Sill At Front Seat Y-Axis Velocity	B-46
37	Right Side Sill At Front Seat Z-Axis Acceleration	B-47
38	Right Side Sill At Front Seat Z-Axis Velocity	B-48
39	Right Side Sill At Front Seat Resultant Acceleration	B-49
40	Right Side Sill At Rear Seat X-Axis Acceleration	B-50
41	Right Side Sill At Rear Seat X-Axis Velocity	B-51
42	Right Side Sill At Rear Seat Y-Axis Acceleration	B-52
43	Right Side Sill At Rear Seat Y-Axis Velocity	B-53
44	Right Side Sill At Rear Seat Z-Axis Acceleration	B-54
45	Right Side Sill At Rear Seat Z-Axis Velocity	B-55
46	Right Side Sill At Rear Seat Resultant Acceleration	B-56
47	Rear Floorpan Above Axle X-Axis Acceleration	B-57
48	Rear Floorpan Above Axle X-Axis Velocity	B-58

Table of Data Plots (Continued)
Test Vehicle Instrumentation Plots (Continued)
Acceleration Data - Filter Class 60
Integration Data - Filter Class 180

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
49	Rear Floorpan Above Axle Y-Axis Acceleration	B-59
50	Rear Floorpan Above Axle Y-Axis Velocity	B-60
51	Rear Floorpan Above Axle Z-Axis Acceleration	B-61
52	Rear Floorpan Above Axle Z-Axis Velocity	B-62
53	Rear Floorpan Above Axle Resultant Acceleration	B-63
54	Left Side Sill At Front Seat Y-Axis Acceleration	B-64
55	Left Side Sill At Front Seat Y-Axis Velocity	B-65
56	Left Side Sill At Front Seat Y-Axis Displacement	B-66
57	Left Side Sill At Rear Seat Y-Axis Acceleration	B-67
58	Left Side Sill At Rear Seat Y-Axis Velocity	B-68
59	Left Side Sill At Rear Seat Y-Axis Displacement	B-69
60	Left Front Door on Centerline Y-Axis Acceleration	B-70
61	Left Front Door on Centerline Y-Axis Velocity	B-71
62	Left Front Door on Centerline Y-Axis Displacement	B-72
63	Right Rear Occupant Compartment Y-Axis Acceleration	B-73
64	Right Rear Occupant Compartment Y-Axis Velocity	B-74
65	Right Rear Occupant Compartment Y-Axis Displacement	B-75
66	Mid-Rear of Left Front Door Y-Axis Acceleration	B-76
67	Mid-Rear of Left Front Door Y-Axis Velocity	B-77
68	Mid-Rear of Left Front Door Y-Axis Displacement	B-78
69	Left Front Door Upper Centerline Y-Axis Acceleration	B-79
70	Left Front Door Upper Centerline Y-Axis Velocity	B-80
71	Left Front Door Upper Centerline Y-Axis Displacement	B-81
72	Mid-Rear of Left Rear Door Y-Axis Acceleration	B-82
73	Mid-Rear of Left Rear Door Y-Axis Velocity	B-83
74	Mid-Rear of Left Rear Door Y-Axis Displacement	B-84
75	Left Rear Door Upper Centerline Y-Axis Acceleration	B-85
76	Left Rear Door Upper Centerline Y-Axis Velocity	B-86

Table of Data Plots (Continued)
Test Vehicle Instrumentation Plots (Continued)
Acceleration Data - Filter Class 60
Integration Data - Filter Class 180

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
77	Left Rear Door Upper Centerline Y-Axis Displacement	B-87
78	Left Lower A-Post Y-Axis Acceleration	B-88
79	Left Lower A-Post Y-Axis Velocity	B-89
80	Left Middle A-Post Y-Axis Acceleration	B-90
81	Left Middle A-Post Y-Axis Velocity	B-91
82	Left Lower B-Post Y-Axis Acceleration	B-92
83	Left Lower B-Post Y-Axis Velocity	B-93
84	Left Middle B-Post Y-Axis Acceleration	B-94
85	Left Middle B-Post Y-Axis Velocity	B-95
86	Left Front Seat Track Y-Axis Acceleration	B-96
87	Left Front Seat Track Y-Axis Velocity	B-97
88	Left Rear Seat Track Y-Axis Acceleration	B-98
89	Left Rear Seat Track Y-Axis Velocity	B-99
90	Vehicle Center Of Gravity X-Axis Acceleration	B-100
91	Vehicle Center Of Gravity X-Axis Velocity	B-101
92	Vehicle Center Of Gravity Y-Axis Acceleration	B-102
93	Vehicle Center Of Gravity Y-Axis Velocity	B-103
94	Vehicle Center Of Gravity Z-Axis Acceleration	B-104
95	Vehicle Center Of Gravity Z-Axis Velocity	B-105
96	Vehicle Center Of Gravity Resultant Acceleration	B-106

MDB Instrumentation Plots
Acceleration Data - Filter Class 60
Integration Data - Filter Class 180

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
97	MDB Center Of Gravity X-Axis Acceleration	B-108
98	MDB Center Of Gravity X-Axis Velocity	B-109
99	MDB Center Of Gravity Y-Axis Acceleration	B-110
100	MDB Center Of Gravity Y-Axis Velocity	B-111

Table of Data Plots (Continued)

MDB Instrumentation Plots (Continued)

Acceleration Data - Filter Class 60

Integration Data - Filter Class 180

101	MDB Center Of Gravity Z-Axis Acceleration	B-112
102	MDB Center Of Gravity Z-Axis Velocity	B-113
103	MDB Center Of Gravity Resultant Acceleration	B-114
104	MDB Left Rear X-Axis Acceleration	B-115
105	MDB Left Rear X-Axis Velocity	B-116
106	MDB Left Rear Y-Axis Acceleration	B-117
107	MDB Left Rear Y-Axis Velocity	B-118
108	MDB Right Side Contact Switch	B-119
109	MDB Left Side Contact Switch	B-120

Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - FIR Filtered

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
110	Driver Upper Rib Y-Axis Acceleration	B-122
111	Driver Lower Rib Y-Axis Acceleration	B-123
112	Driver Lower Spine Y-Axis Acceleration	B-124
113	Driver Pelvis Y-Axis Acceleration	B-125
114	Passenger Upper Rib Y-Axis Acceleration	B-126
115	Passenger Lower Rib Y-Axis Acceleration	B-127
116	Passenger Lower Spine Y-Axis Acceleration	B-128
117	Passenger Pelvis Y-Axis Acceleration	B-129

Table of Data Plots (Continued)

Driver and Passenger Dummy Instrumentation Plots
Acceleration Data - FIR Filtered - Redundant

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
118	Driver Upper Rib Y-Axis Redundant Acceleration	B-131
119	Driver Lower Rib Y-Axis Redundant Acceleration	B-132
120	Driver Lower Spine Y-Axis Redundant Acceleration	B-133
121	Driver Pelvis Y-Axis Redundant Acceleration	B-134
122	Passenger Upper Rib Y-Axis Redundant Acceleration	B-135
123	Passenger Lower Rib Y-Axis Redundant Acceleration	B-136
124	Passenger Lower Spine Y-Axis Redundant Acceleration	B-137
125	Passenger Pelvis Y-Axis Redundant Acceleration	B-138

Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - Filter Class 1000

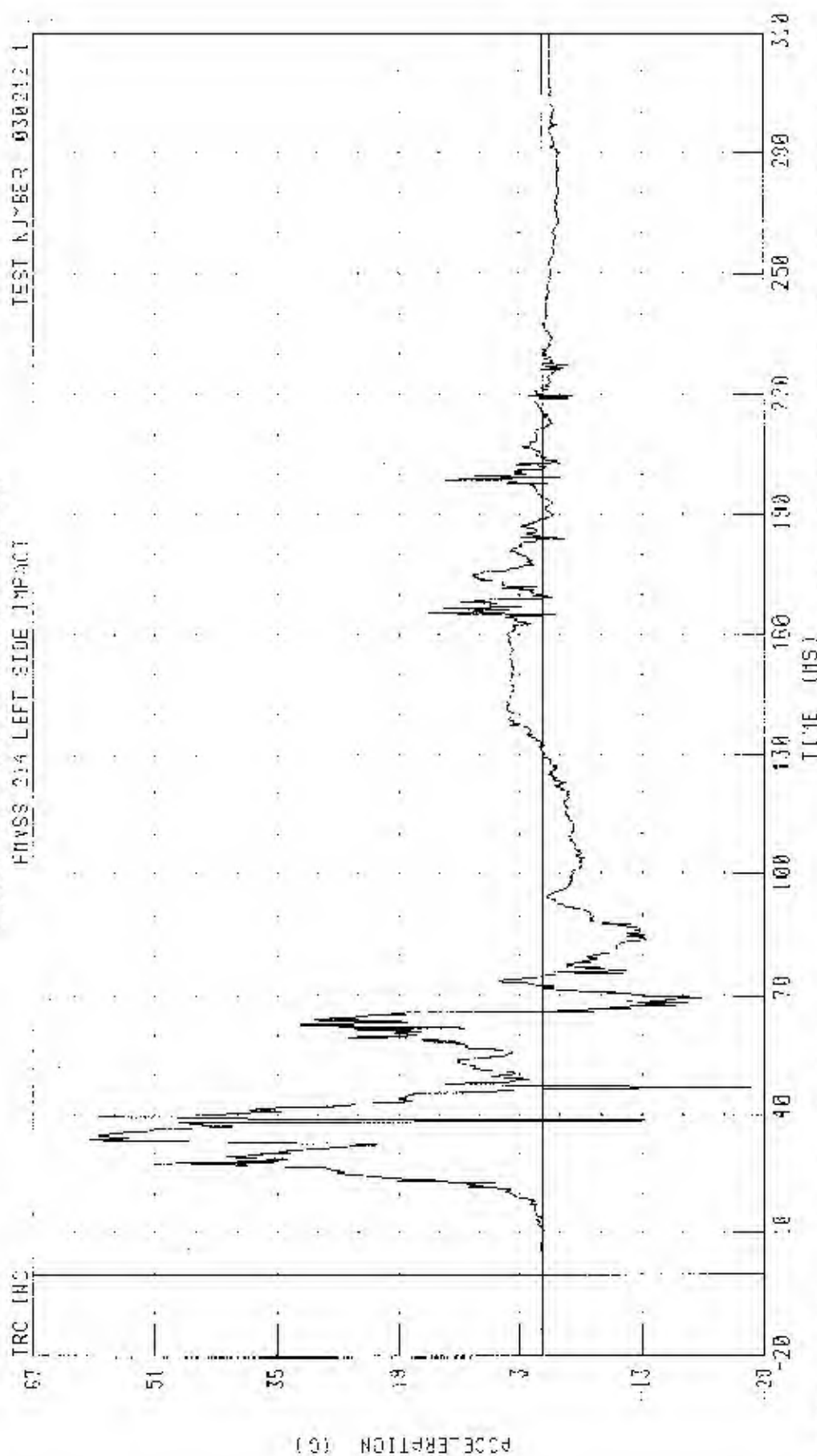
Integration Data - Filter Class 180

48/24 4PT 30 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 HONDA PROTEGE S

DRIVER UPPER RIB Y-AXIS ACCELERATION

FNVS 214 LEFT SIDE IMPACT

TEST NUMBER 030212-1



CHANNEL: SURY62 FILTER: CIL CLPS 2500

PEAK DATA: 60.39 0.373 94 MS, -27.16 0.345 94 MS

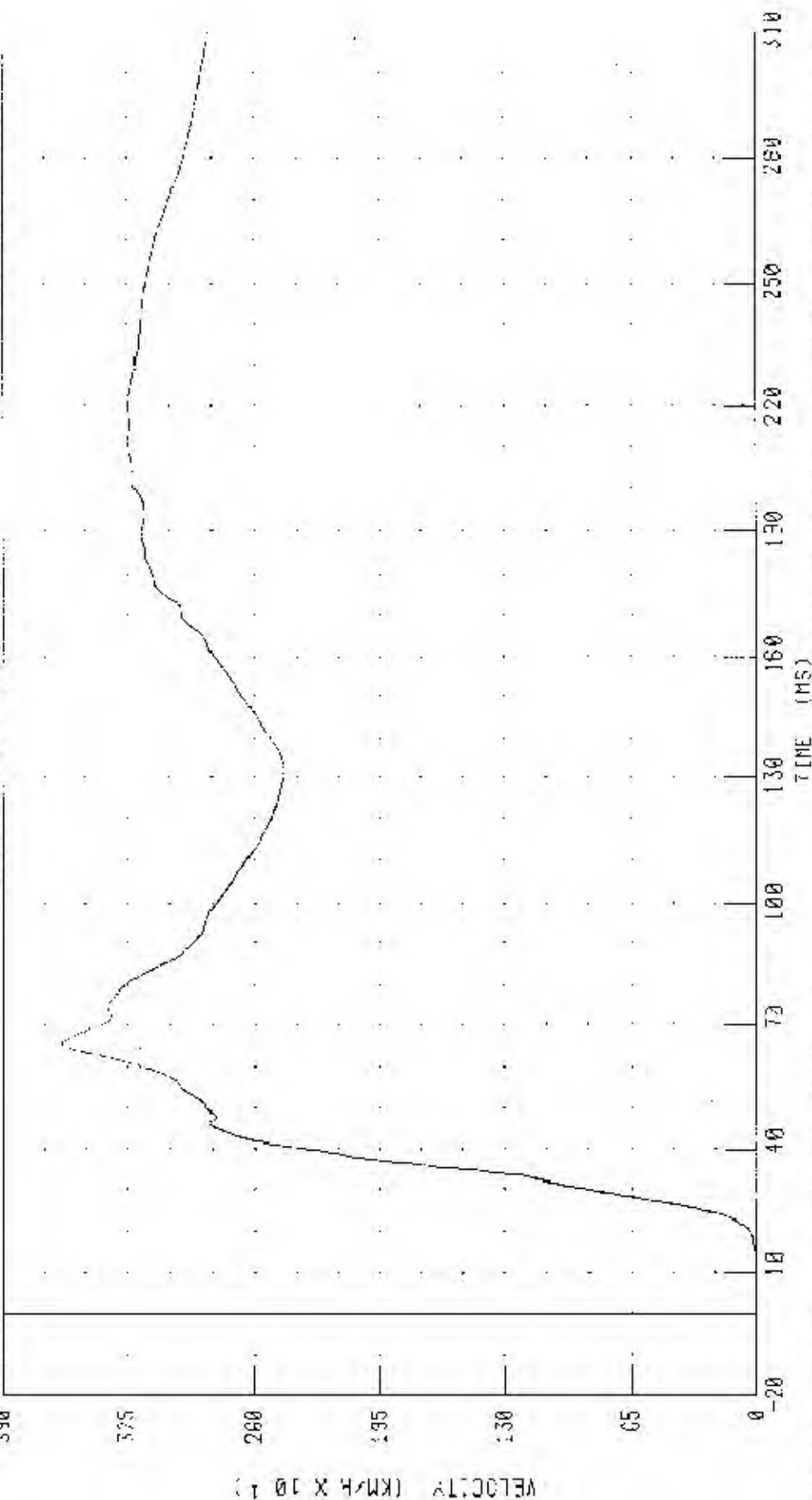
40/24 KPH 90 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER; INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

DRIVER UPPER RIO X AXIS VELOCITY

FWISS 214 LEFT SIDE IMPACT

IRC INC.

TEST NUMBER: 030212-1



CHANNEL: CURY71 FILTER: CH. CLASS 100

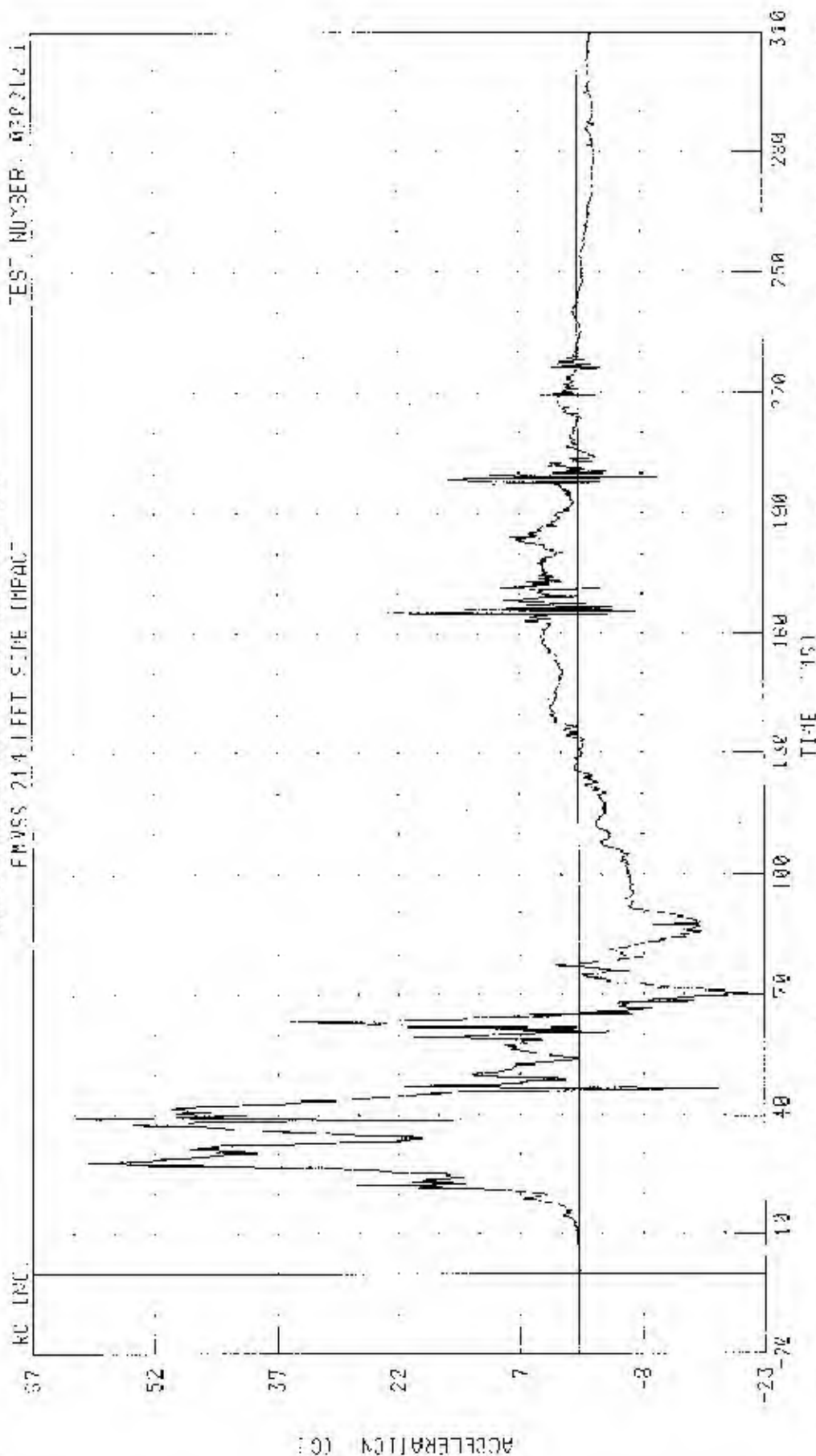
PEAK DATA 35.95 KM/H @ 65.92 MS, 0.00 KPH @ 2.24 MS

48/24 MPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROJ-UT 2

CRUISE LOWER RIB Y AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: MP212-1



CHANNEL 11RY51 FILTER CF CASE 1000

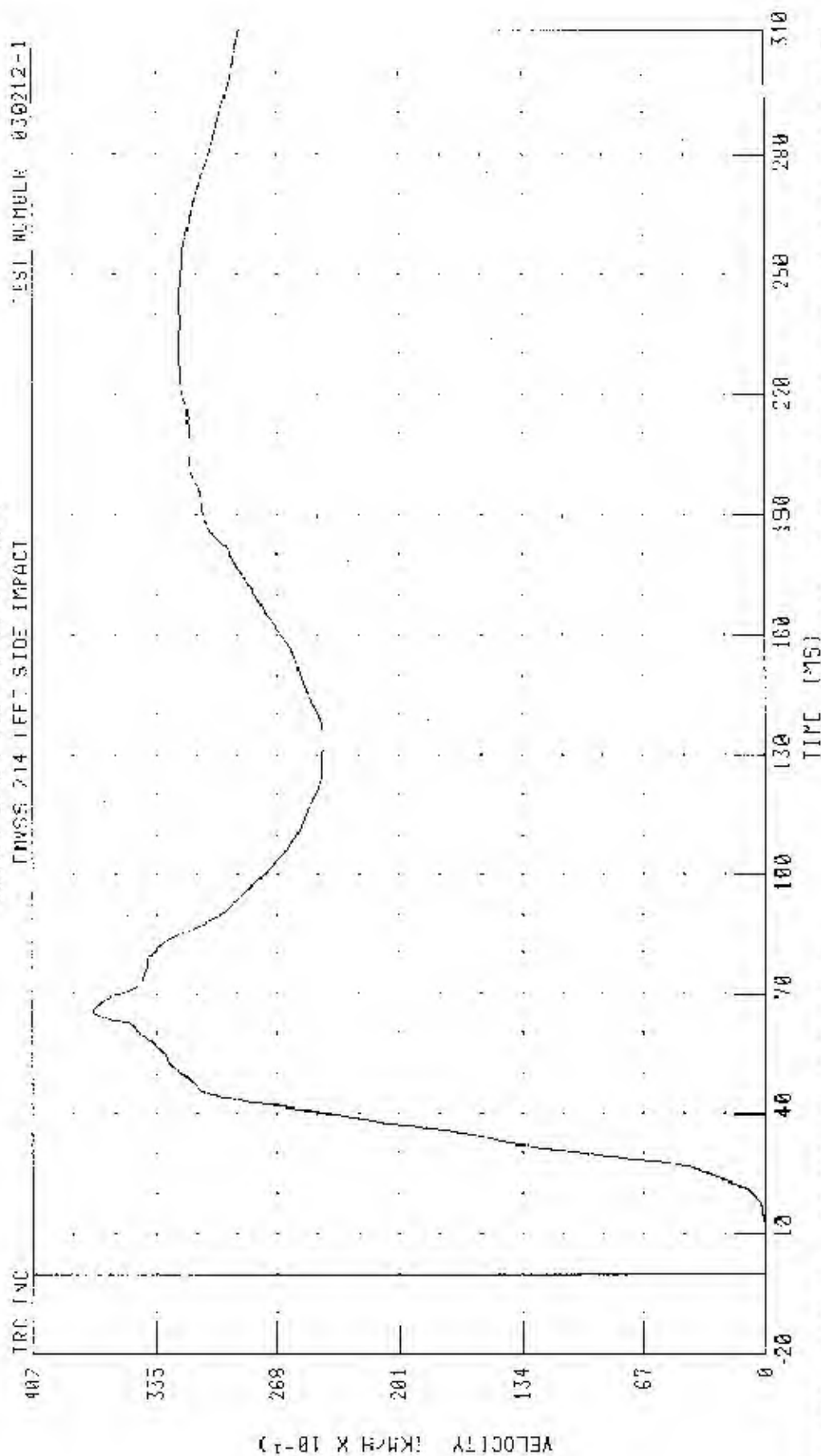
TIME (ms)

PEAK DATA: 51.81 0 0 29 28 MS: -21.27 0 0 10.24 PS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) (K10 L2-1 SJJ-10 74WS MAZDA ROUTE 5

DRIVER LOWER RIB Y-AXIS VELOCITY

TEST NUMBER 030212-1



PEAK DATA: 36 91 KPH @ 65 MS 0.30 K11/1 @ 1.20 MS

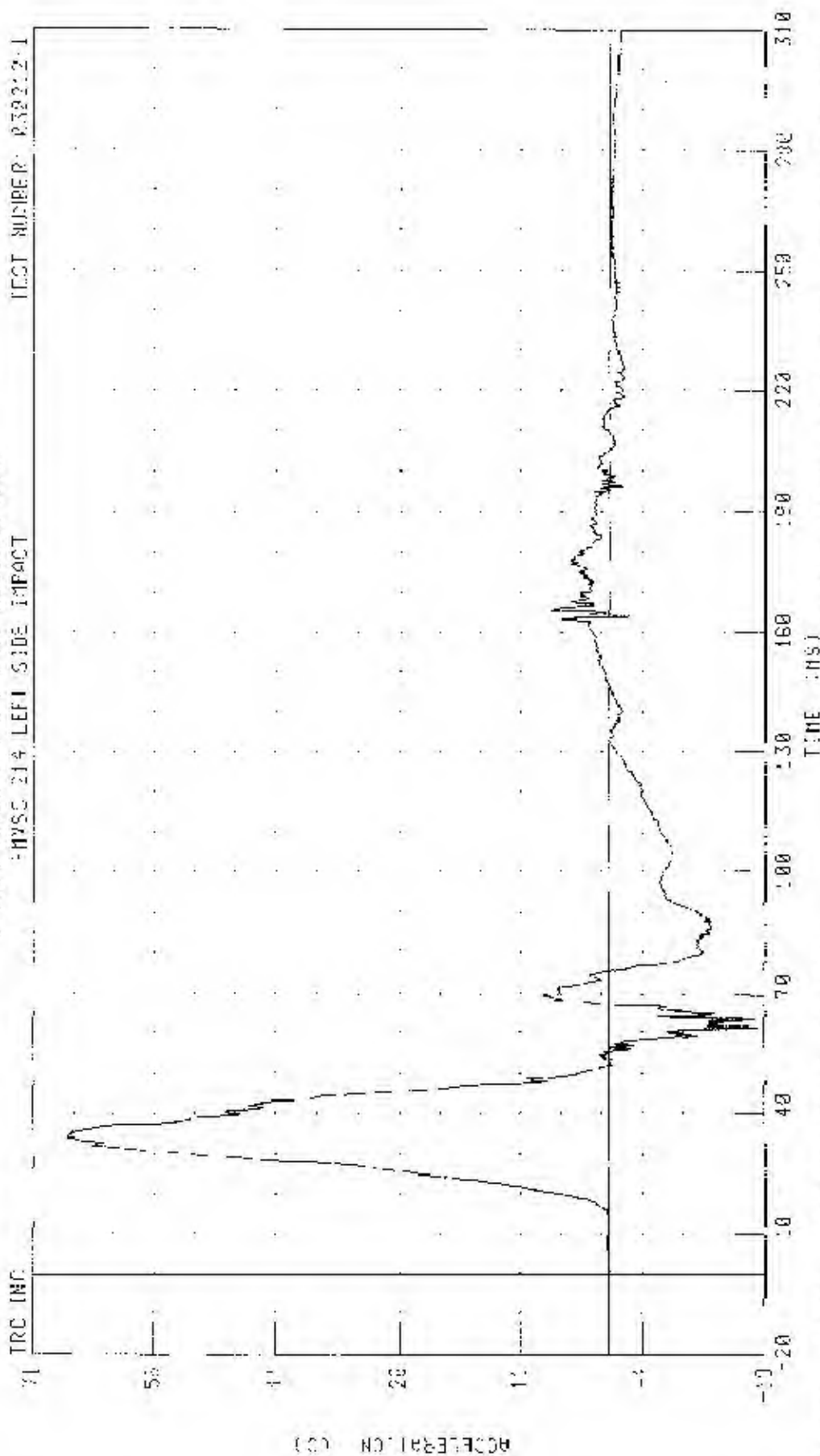
CHANNEL LURVY1 FILTER: CH CLASS 130

48/24 KPII 30 DEGREE SIDE IMPACT CRUISING DEFLATABLE BARRIER INTO LEFT SIDE J- 2033 K/210 PROTECTED S

DRIVER LOWER SEAT X AXIS ACCELERATION

TEST NUMBER: 032212-1

HYSC 214 LEFT SIDE IMPACT



TIME (MS)

PEAK DATA: 36 87 0 0 34 80 00 -18 12 3 8 61 04 93

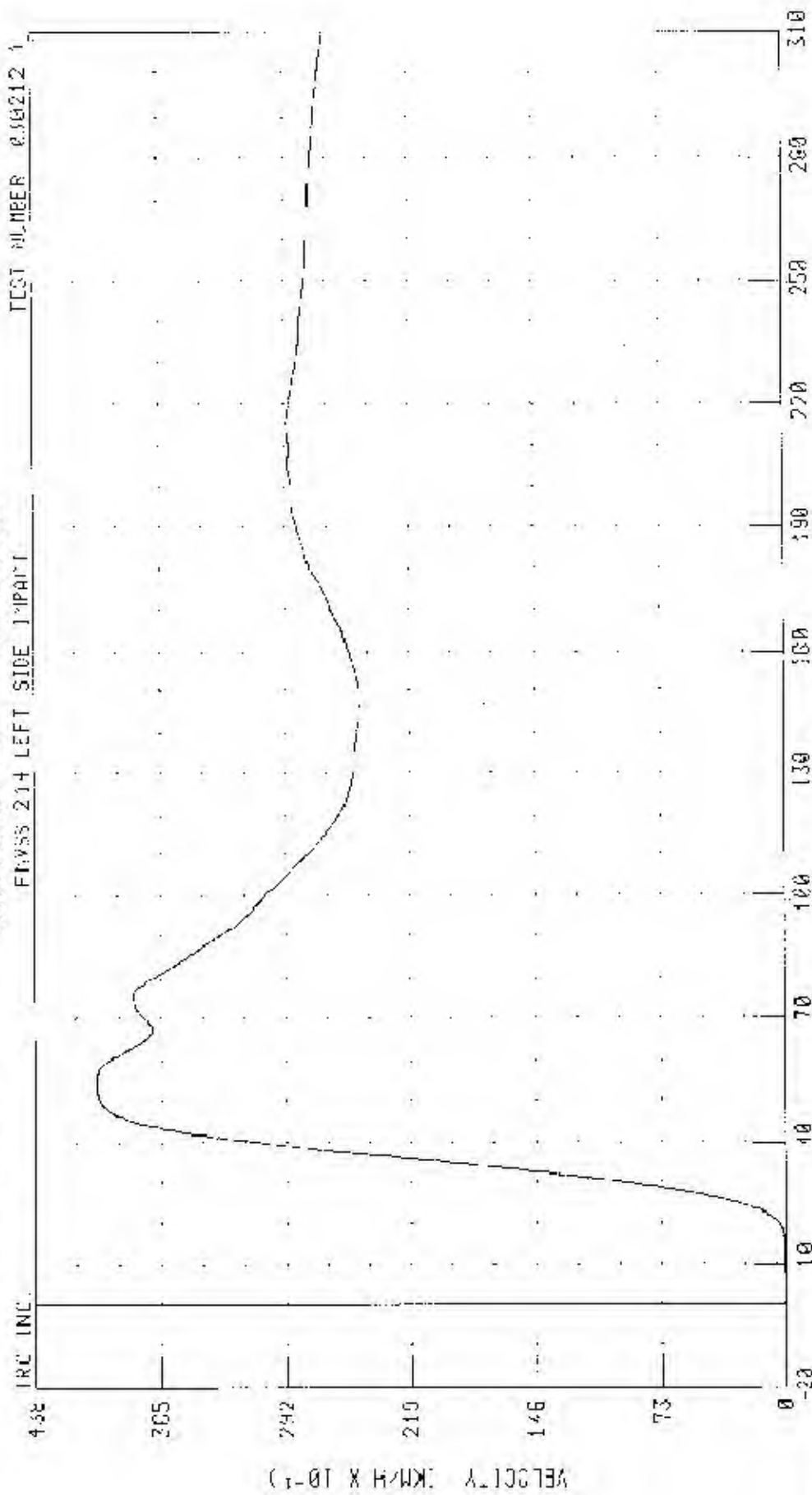
CHANNEL 1:2YC1 FILTER: CH CLASS 1000

48/24 KPH 00 DEGREE SIDE IMPACT (MOVING IMPERIAL BARRIER) INNO LEFT SIDE OF 2003 "4/14 PROTEGE 5

DRIVER LOWER SPINE X-RAY IS VELOCITY

TEST NUMBER 030212-1

FRYSS 214 LEFT SIDE IMPACT



TIME (MS)

PERK DATA: 40 IS KPH 0 55 44 MS, 0 00 KPH 0 0 0.00 MS

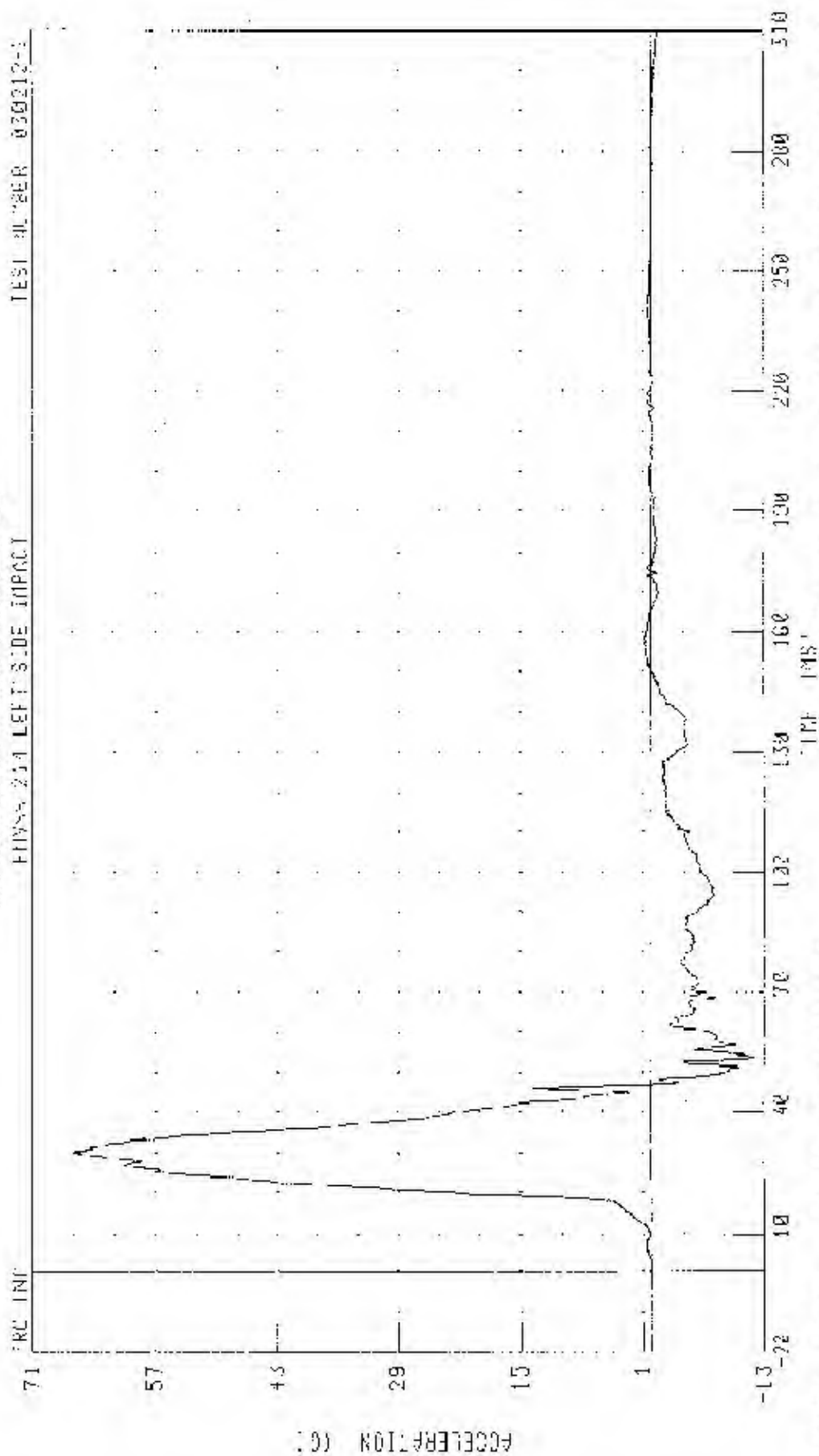
CHANNEL: T12YV1 FILTER: CH CLASS 180

40/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO THE SIDE OF 2000 HP/300 PROTRUSION

DRIVER PELVIS Y AXIS ACCELERATION

FINISH 214 LEFT SIDE IMPACT

TEST NUMBER 030212-1



CHANNEL: PELVY01 FILTER: 0.1/0.1/0.1

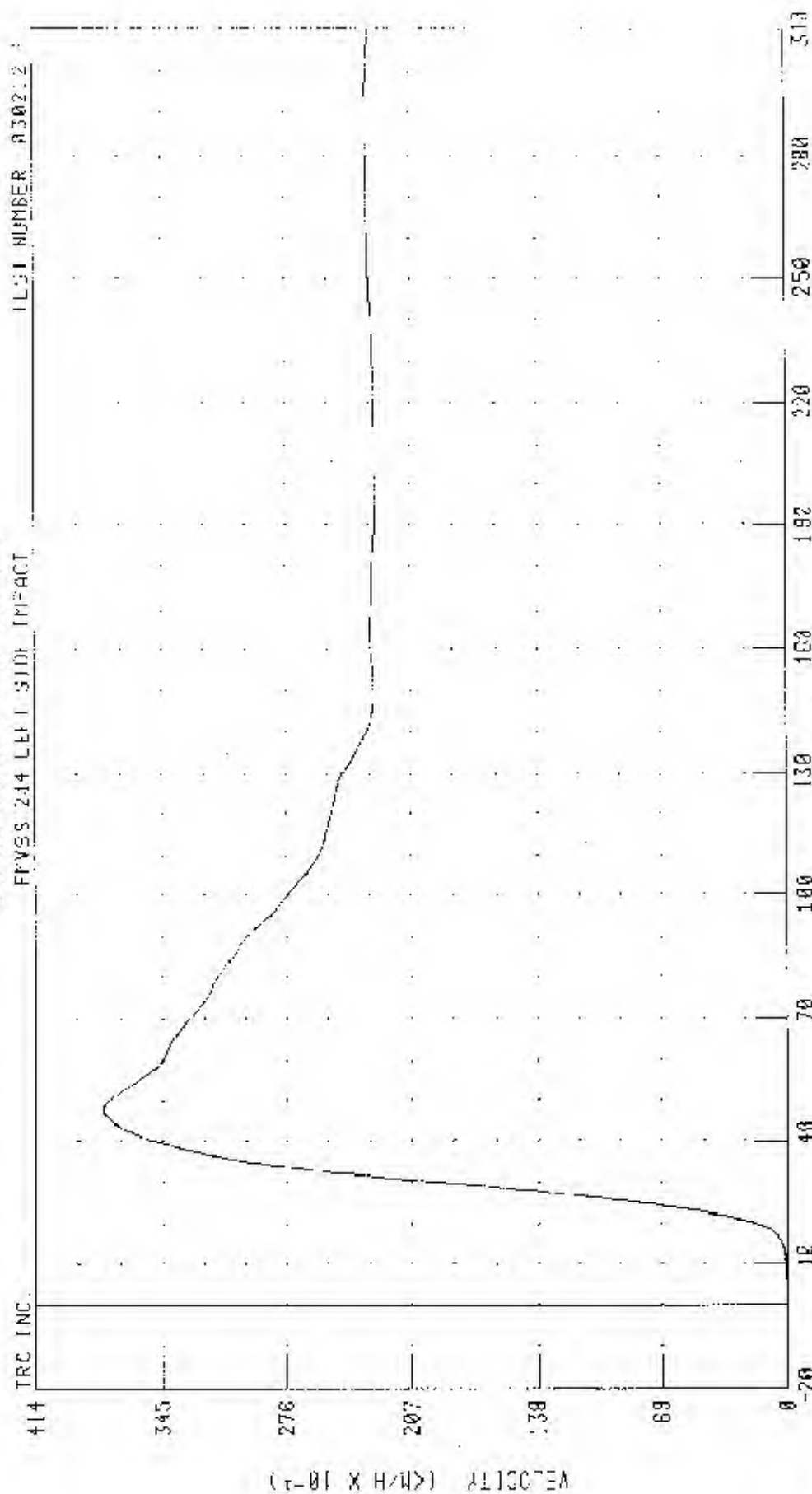
PEAK DATA: 66.21 G @ 10.32 MS; -11.85 G @ 53.20 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2005 MAZDA PROTECT 5

DRIVER PELVIS Y-AXIS VELOCITY

PPVSS 214 LEFT SIDE IMPACT

TEST NUMBER 030212-1



TIME (MS)

CHANNEL: PPVSS FILTER: CH. CLASS: 100

PEAK DATA: 34.50 KPH @ 47.60 MS; 0.00 KPH @ 0.00 MS

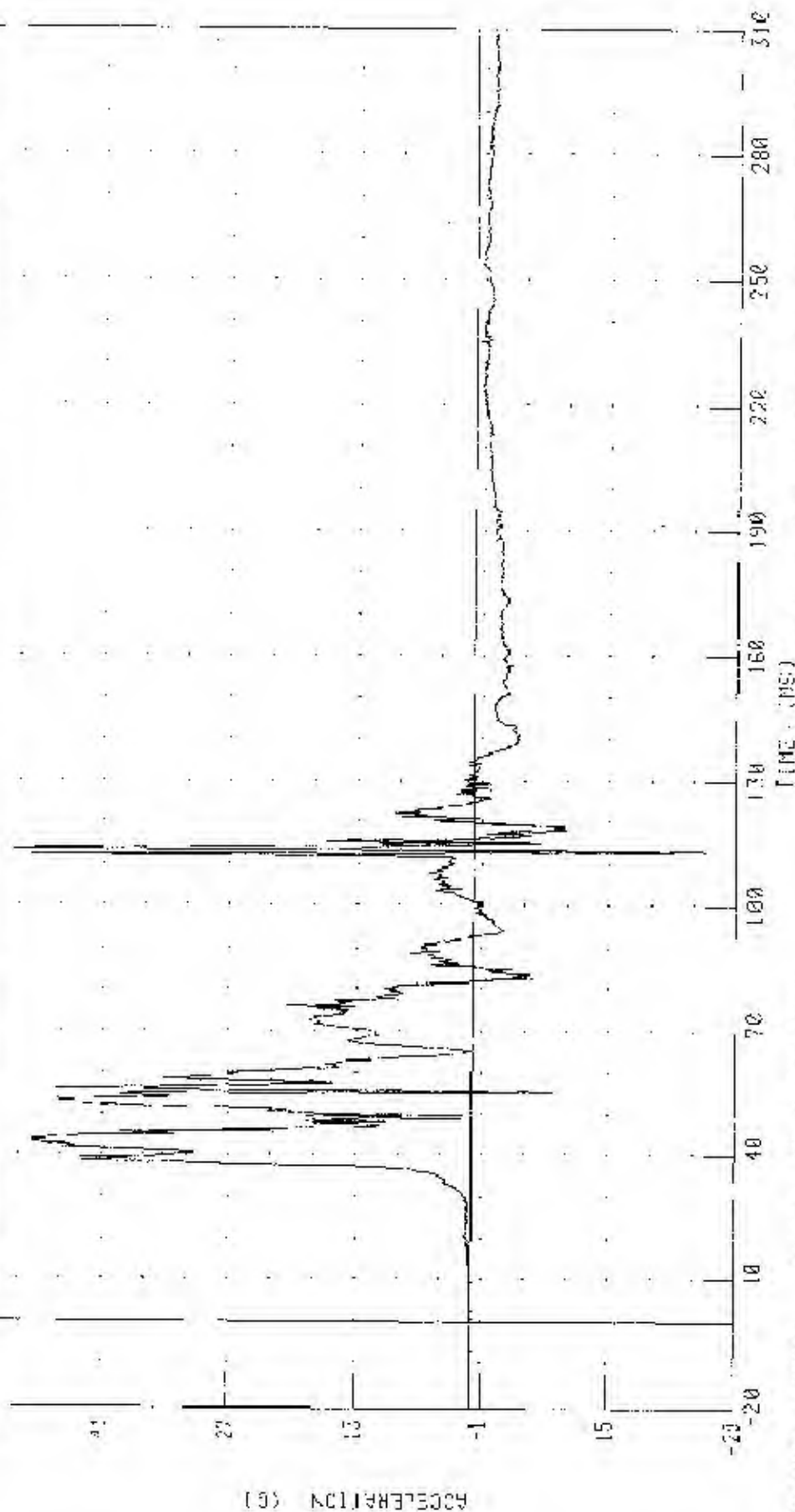
48/24 (PII 90 DEGREE SIDE IMPACT MOVING OFF-RAMPABLE BARRIER) INTO LEFT SIDE OF 2003 HAZ/10 PROTECTE 5

LEFT REAR PASSENGER UPPER RIB Y AXIS ACCELERATION

55 IRG INC

ENVOS 214 LEFT SIDE IMPAC

TEST NUMBER 030212-1



CHANNEL 1 URY04 FILTER CH CLASS 1000

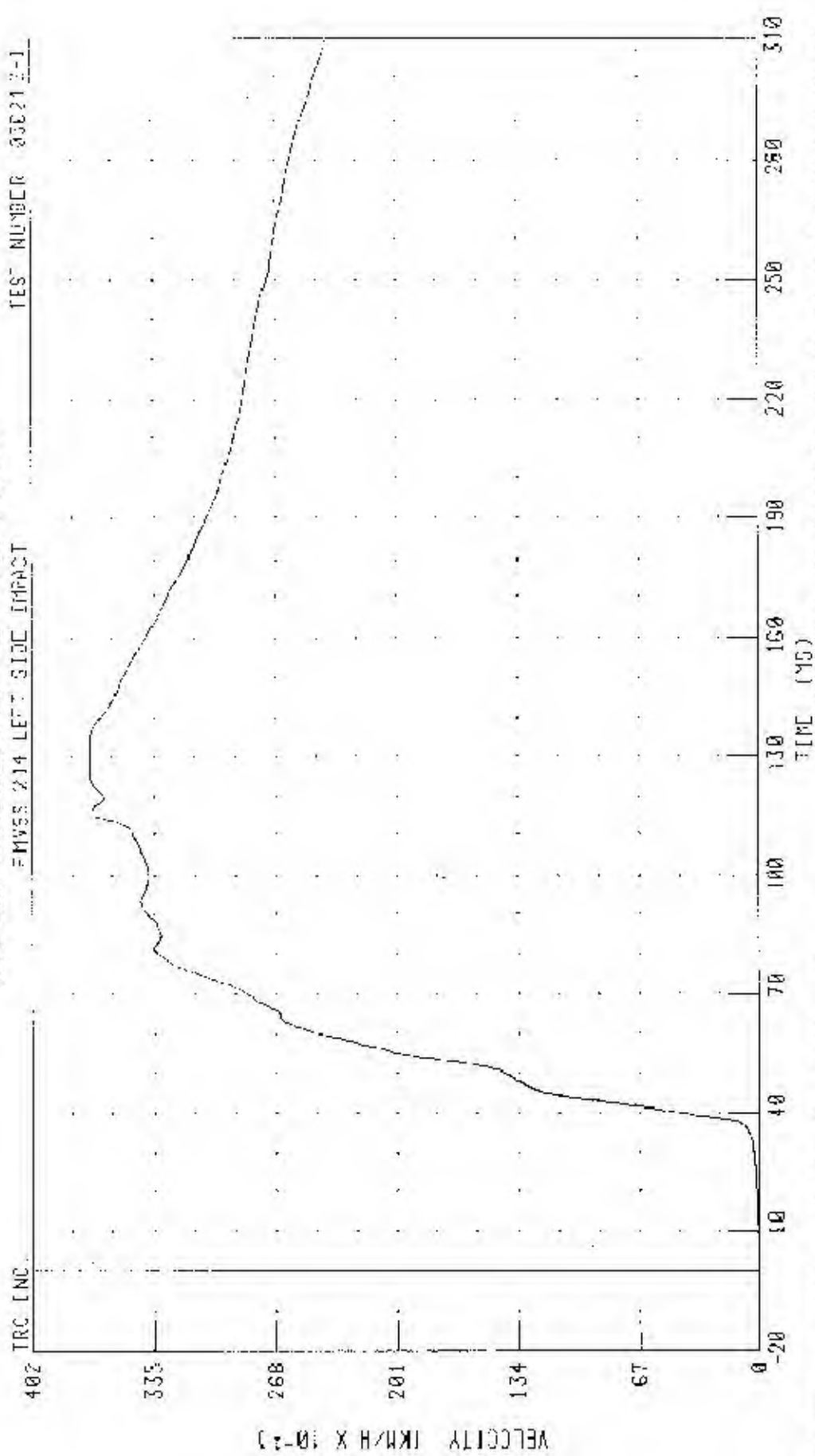
TIME (MS)

PEAK DATA: 53.20 G @ 113.76 MS -20.83 G @ 133.28 MS

18/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMER F. BARRIER) INTO LEFT SIDE OF 2003 MAZDA PRINCE 5

FBI REAR PASSENGER UPPER RIB Y-AXIS VELOCITY

TEST NUMBER 030212-1



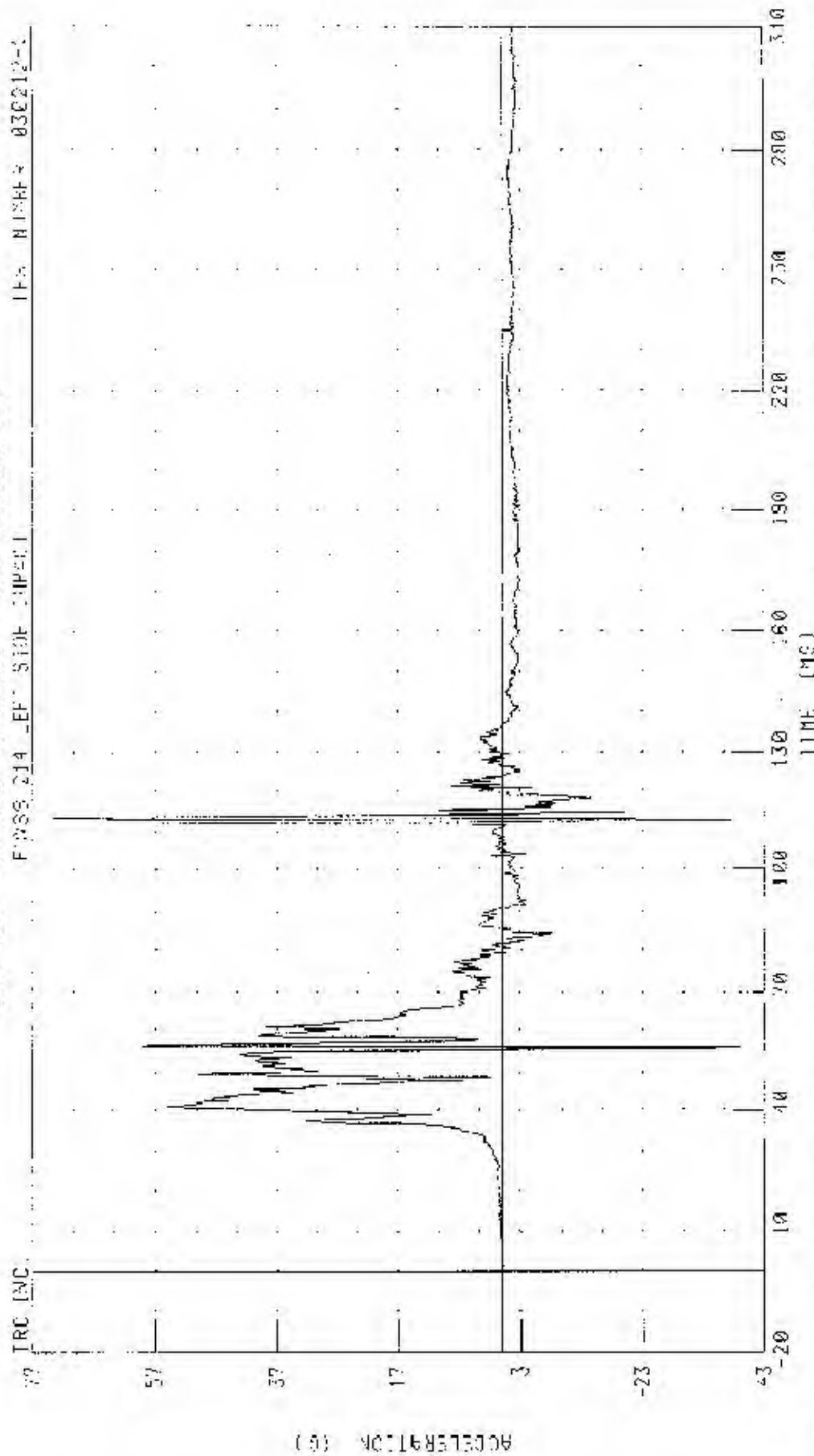
PEAK DATA: 36.95 KPH @ 124.90 MS, 0.00 CM/H @ 0.98 MS

CHANNEL: LCRYV4 FILTER: CII CLASS: 180

40/24 3.41 20 DEGREE SIDE IMPACT (MOVING DUTYMALE BARRETT) INTO LEFT SIDE OF 2007 HAZDIN PROTEGE 5

LEFT REAR PASSENGER LOWER RIB X AXIS ACCELERATION

FWSS 214 LEFT SIDE IMPACT IFA NUMBER 030212-1

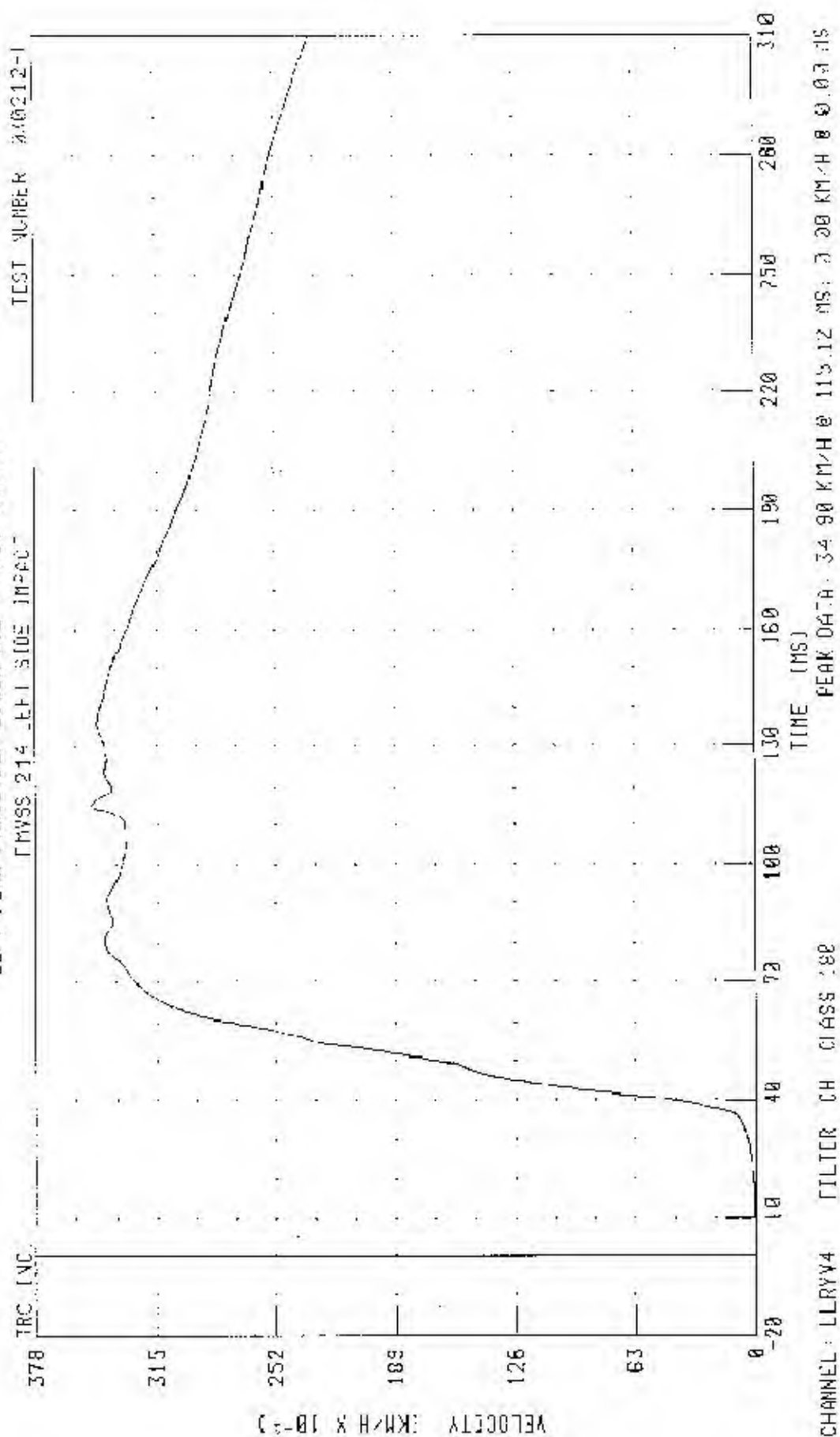


CHANNEL 1 LRV04 FILTER 04 CLASS 1000

PEAK DATA: 33.75 G @ 113.34 MS 39.35 G @ 55.92 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

LEFT REAR PASSENGER LOWER RIB Y-AXIS VELOCITY

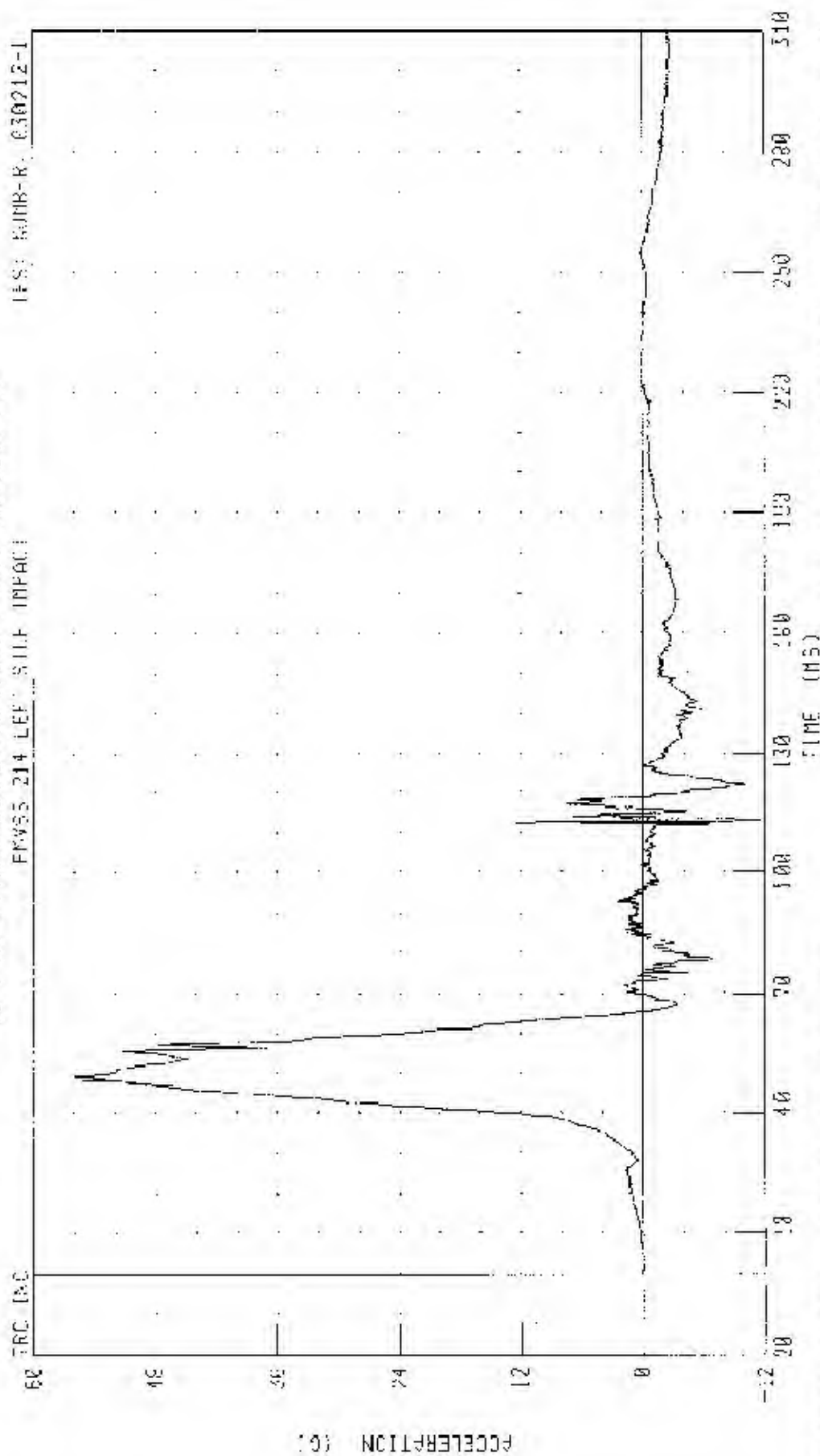


48/24 4PH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2002 K420P PROTEGE 5

LEFT REAR PASSENGER LOWER SPINE Y-AXIS ACCELERATION

FMVSS 214 LEFT RULF IMPACT

IFS: R4NR-R, 030212-1



CHANNEL: TL2Y54 FILTER: 500 HZ CLASS 1000

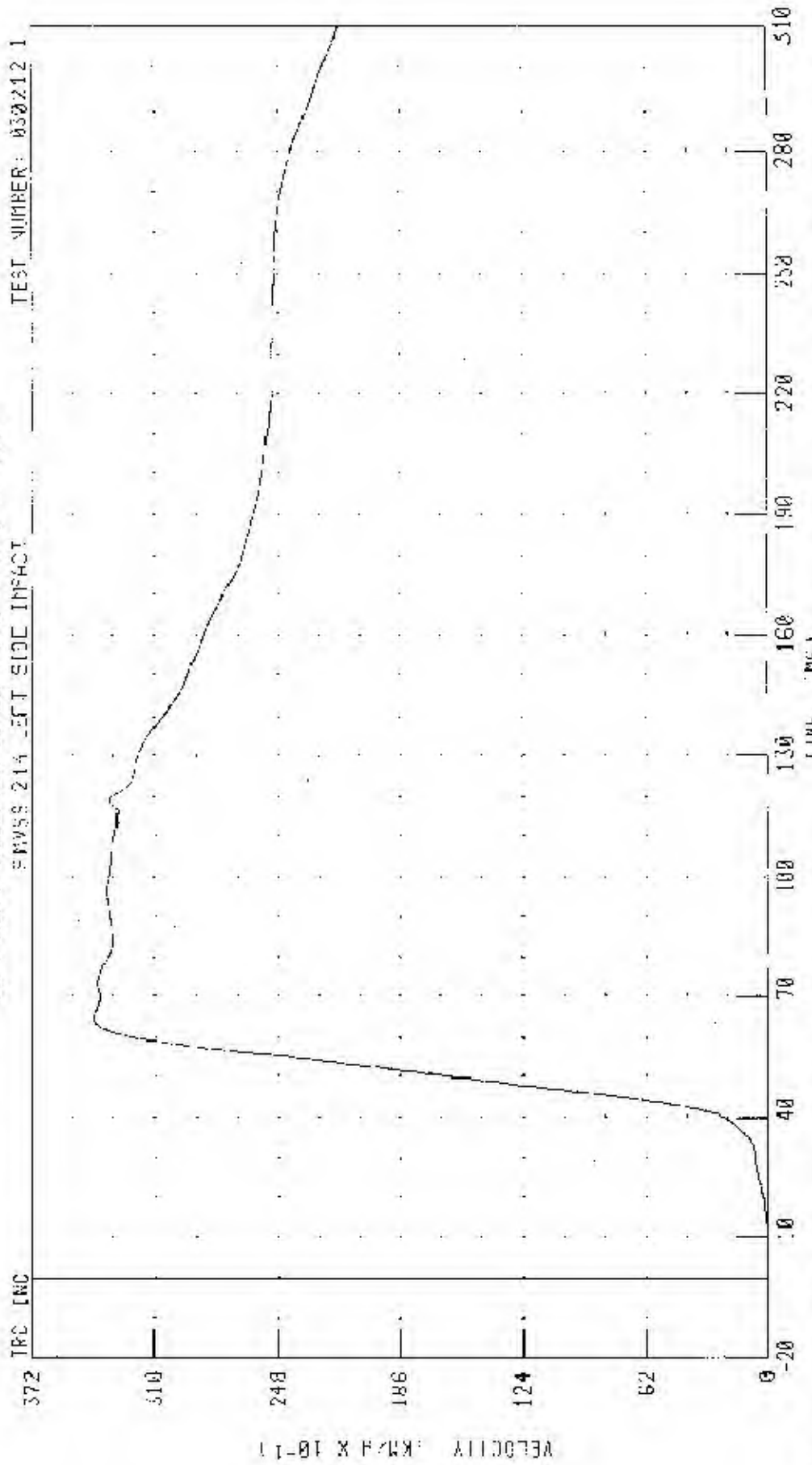
PECK DATA: 53 01 3 0 19 20 MS, -11 35 0 0 113 28 15

48/24 KPA 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) 1/10 LEFT SIDE OF 2003 MAZDA PROCEED 5

LEFT REAR PASSENGER LOWER SPINE Y-AXIS VELOCITY

TEST NUMBER: 030212-1

SVSS 214 LEFT SIDE IMPACT



TIME (MS)

PEAK DATE 34 07 2014 @ 05 28 15; 0 90 MPH @ 0.00 MS

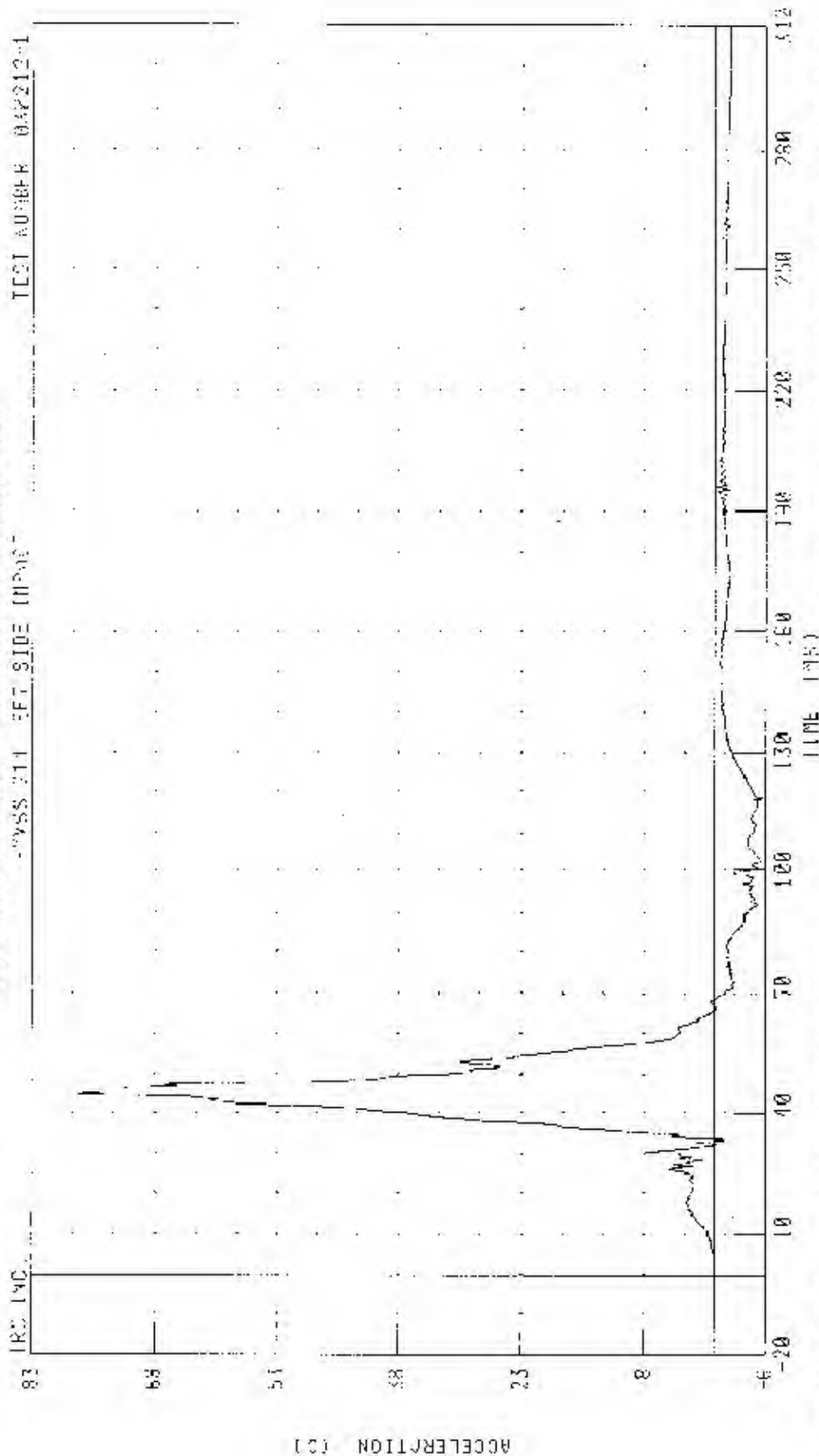
CHANNEL 112VV4 FILTER CH. CROSS 100

48/24 MPH 90 DEGREE SIDE IMPACT MOVING DEFLECTABLE BARRIER TEST SIDE OF ROAD WITH PROTECT 5

LEFT REAR PASSENGER PELVIS Y-AXIS ACCELERATION

TEST NUMBER 030212-1

SYSTEM 111 LEFT SIDE IMPACT

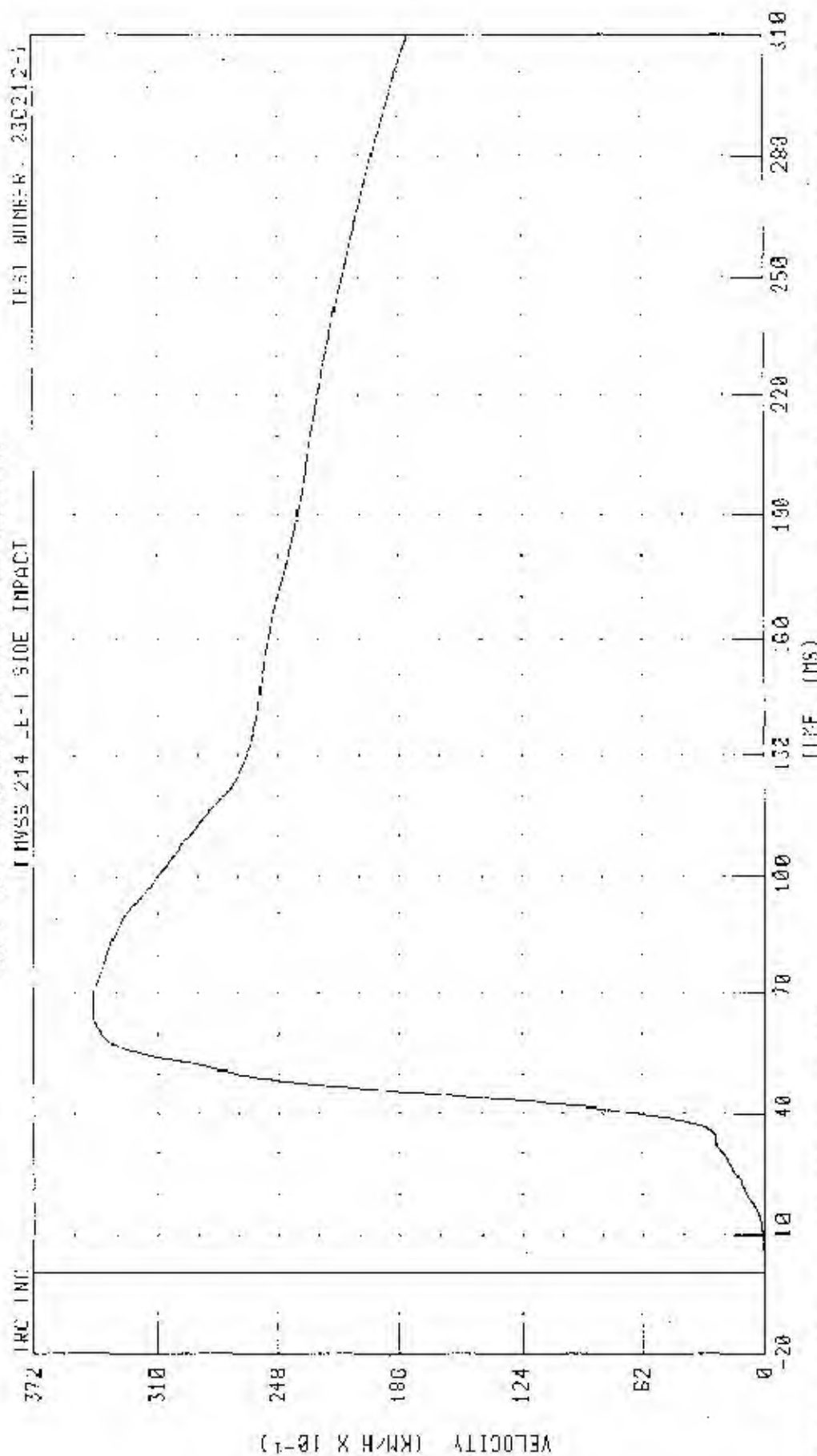


CHANNEL: PELVYG4 -1L EX: CIL CLASS 1200

PEAK DATA 78 22 0 0 44 72 MS. -5.00 G @ 118.03 MS

45/24 KPH 30 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2000 RAZON PRIZEE 5

LEFT REAR PASSENGER RELATIVE Y-AXIS VELOCITY



PEAK DATE 34 75 KM/H @ 68.80 MS; 0 80 KM/H @ 0 00 MS

CHANNEL 0EVYV4 FILTER CH CLASS 100

Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - Filter Class 1000 - Redundant

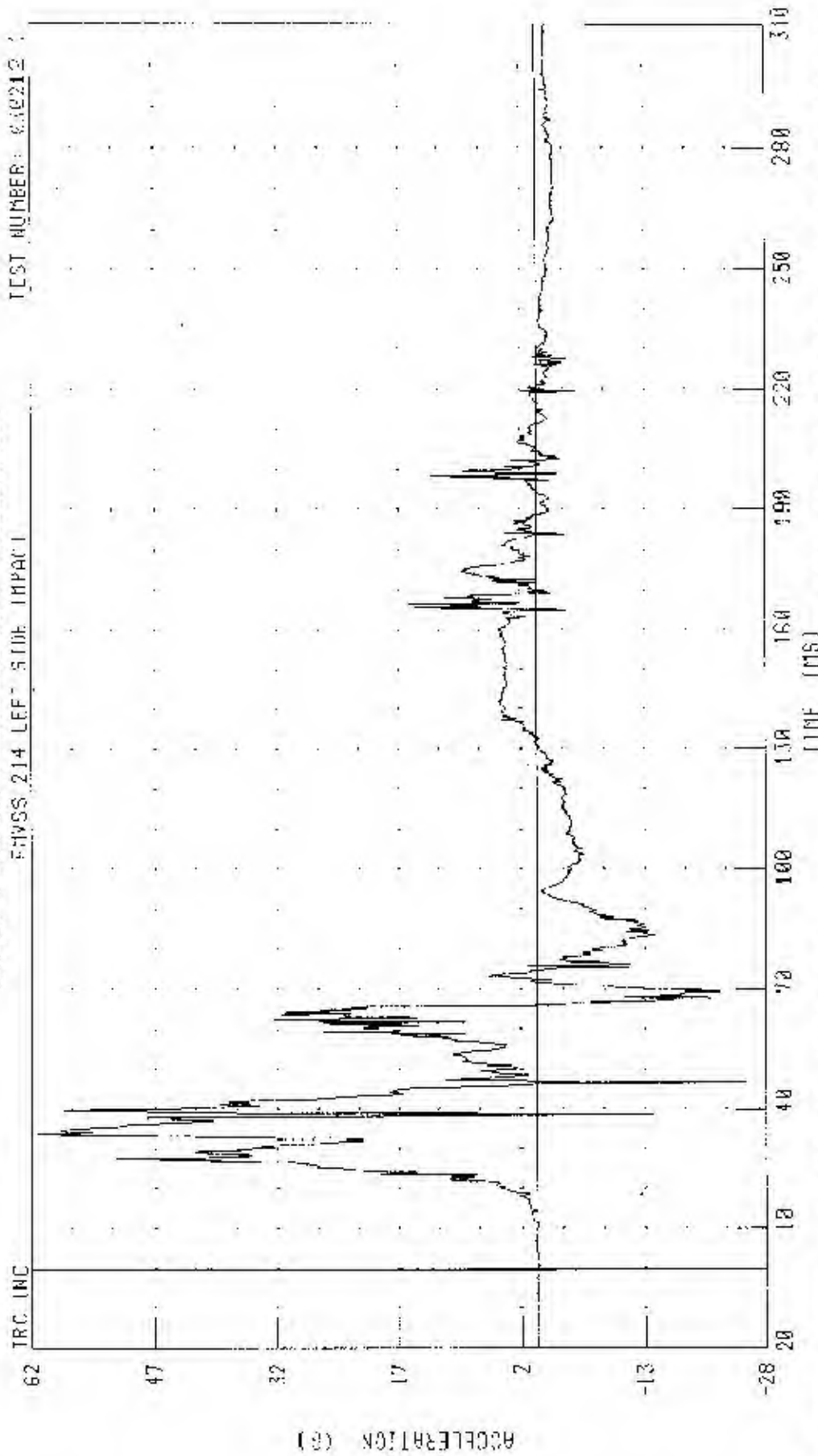
Integration Data - Filter Class 180 - Redundant

48/24 KPH 90 DEGREE SIDE IMPACT: MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2000 MAZDA PROTEGE S

DRIVER UPPER RIB Y-AXIS RESONANT ACCELERATION

SVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



CHANNEL: LURVR1 FILTER: CII CLASS: 1000

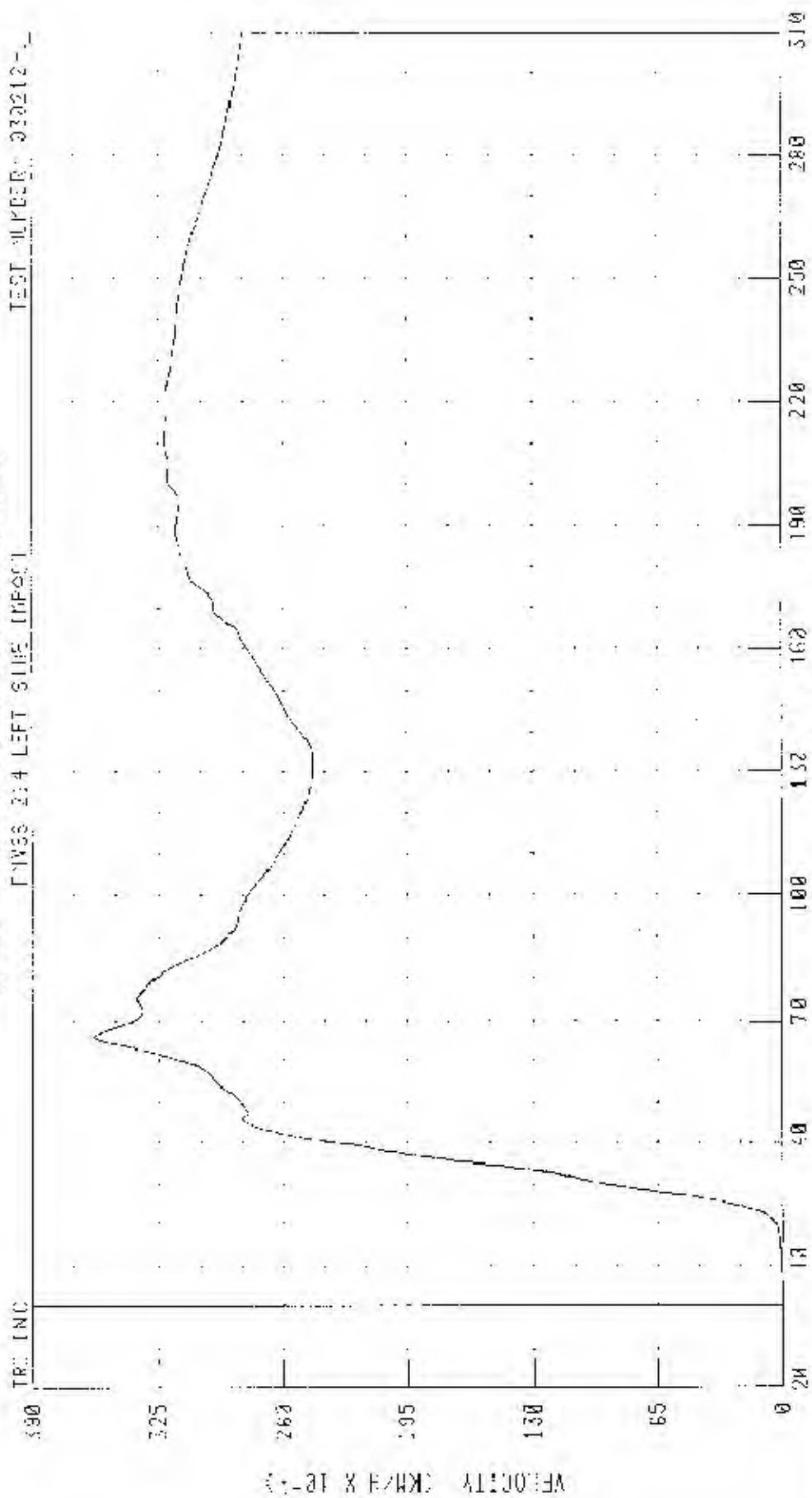
PEAK DATE: 61 34 00 33 92 MS; -23.82 G W 46 64 MS

48/24 MPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2000 MAZDA PROTEGE S

DRIVER UPPER RIB T-AXIS REDUNDANT VELOCITY

TEST NUMBER: 030212-1

FIXES: 214 LEFT SIDE IMPACT



TIME (MS)

PEAK DATA: 35.82 KM/H @ 86.03 MS, 0.00 KM/H @ 1.12 MS

CHANNEL LIBRARY FILTER: CH CLASS 180

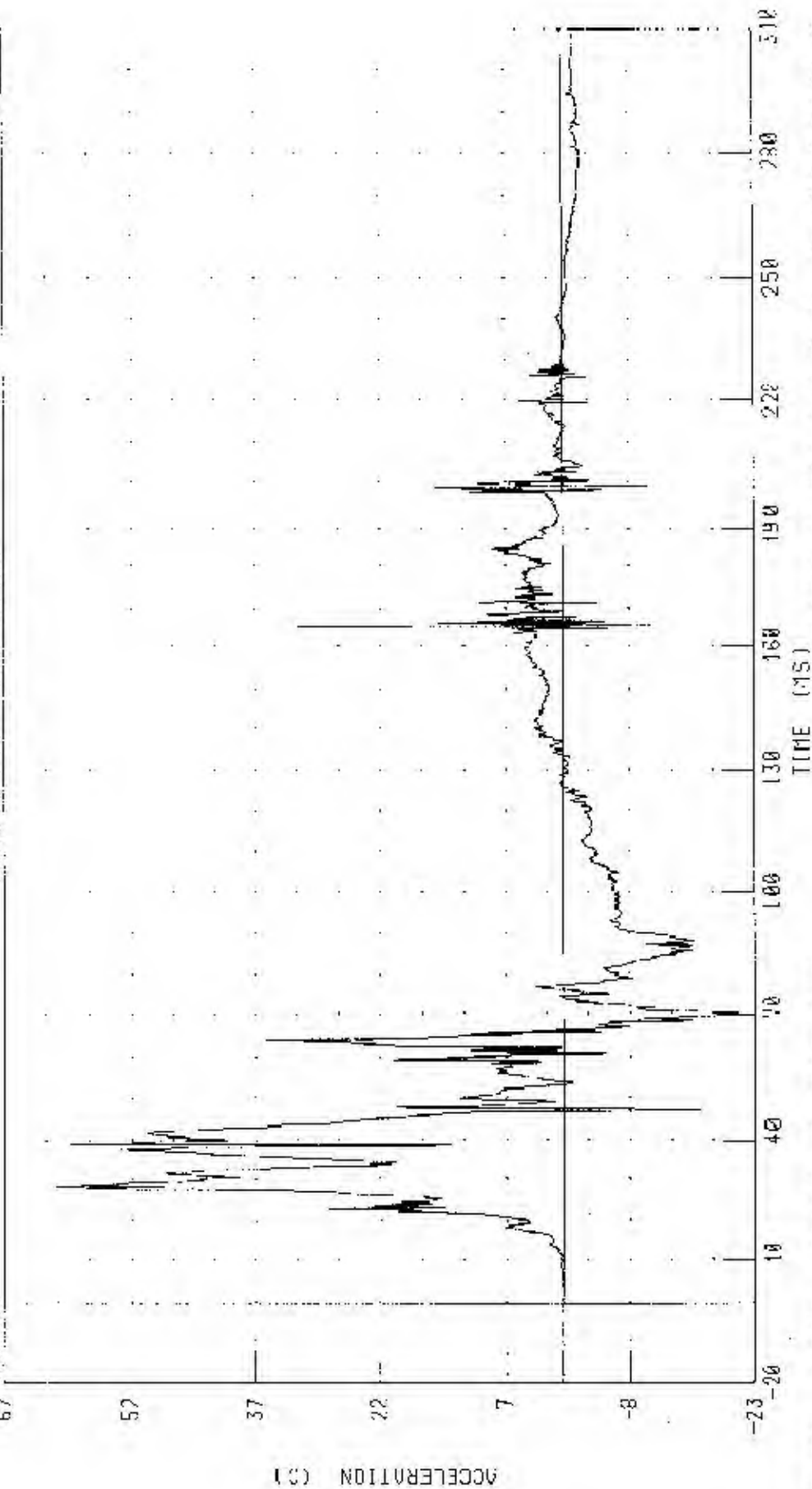
48-24 K-R 90 INCH-E SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 HAZ004 PROFILE 5

DRIVER LOWER 31B X-AXIS REDUNDANT ACCELERATION

TRC INC

ENVSS 214 LEFT SIDE IMPACT

TEST NUMBER 030212-1



CHANNEL 1LRY21 FILTER CF. CLASS 1000

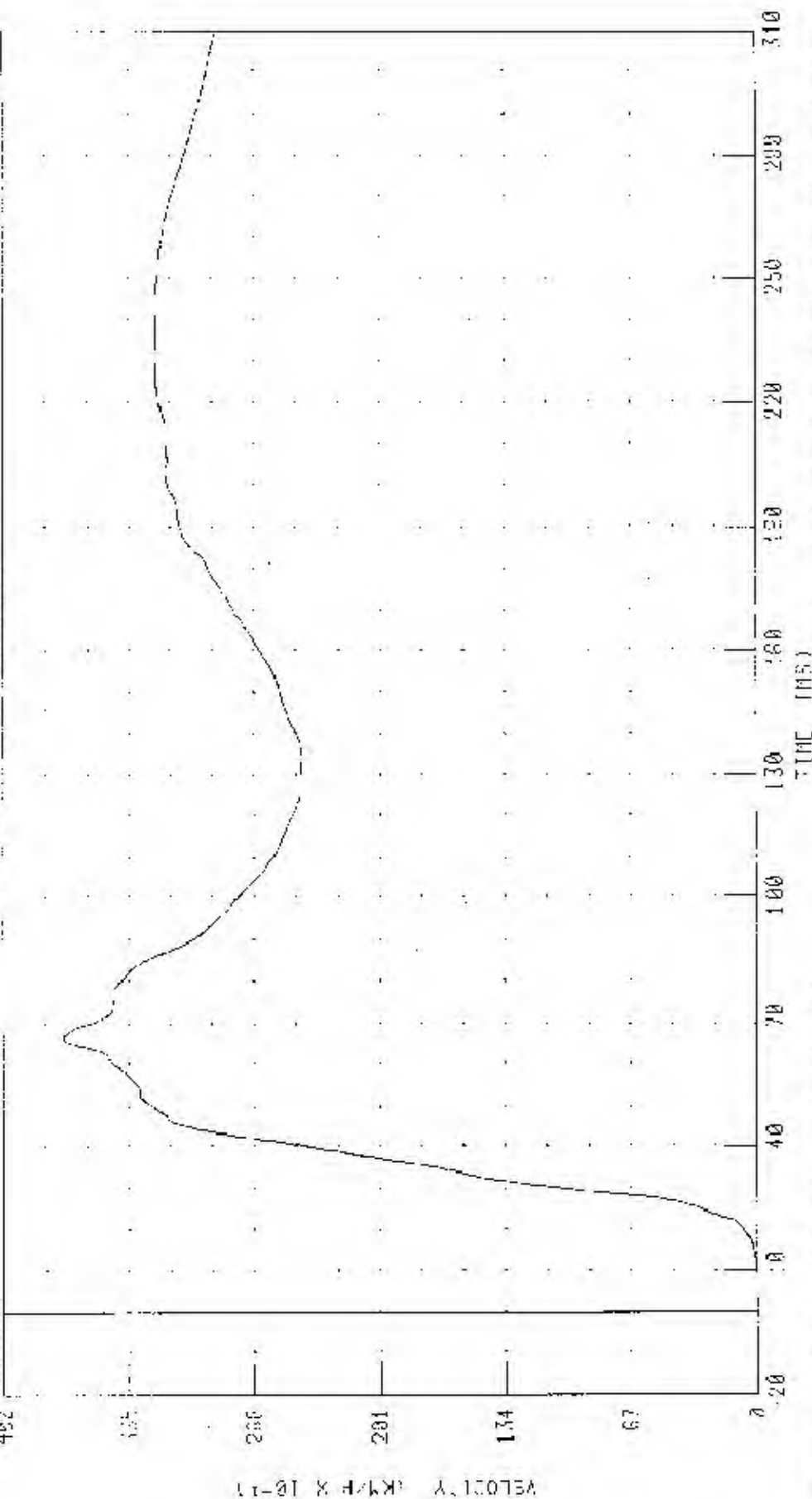
PEAK DATA 61 01 0 0 39 28 *S, -21.62 0 0 70.24 *S

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DETECTABLE BARRIER) INTO LEFT SIDE OF PC3 MAZDA PROTEGE S

DRIVE LANE 2 RIB Y AXIS REDUNDANT VELOCITY

TEST NO. REF. 330212-1

TRC INC.



TIME (MS)

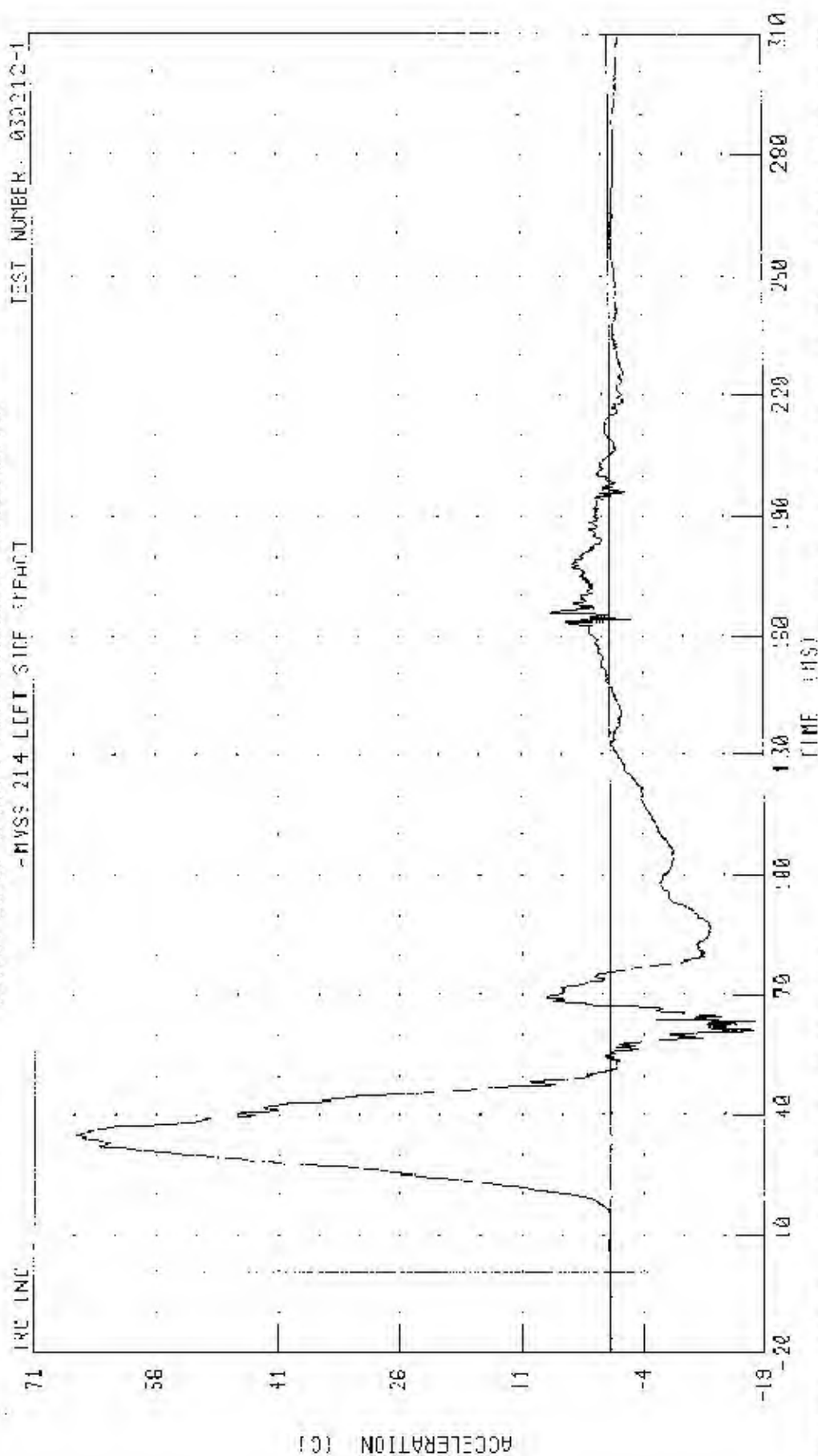
PEAK DATA: 37.00 KPH @ 65.92 MS, 0.00 KPH @ 28.00 MS

CHANNEL ELR001 MILLER CR. CLASS 180

43/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE
 DRIVER LOWER SPINE Y-AXIS REBOUND ACCELERATION

TEST NUMBER: 030212-1

-MYSS 214 LEFT SIDE IMPACT



CHANNEL: T12VR1 FILTER: CH CLASS 1000

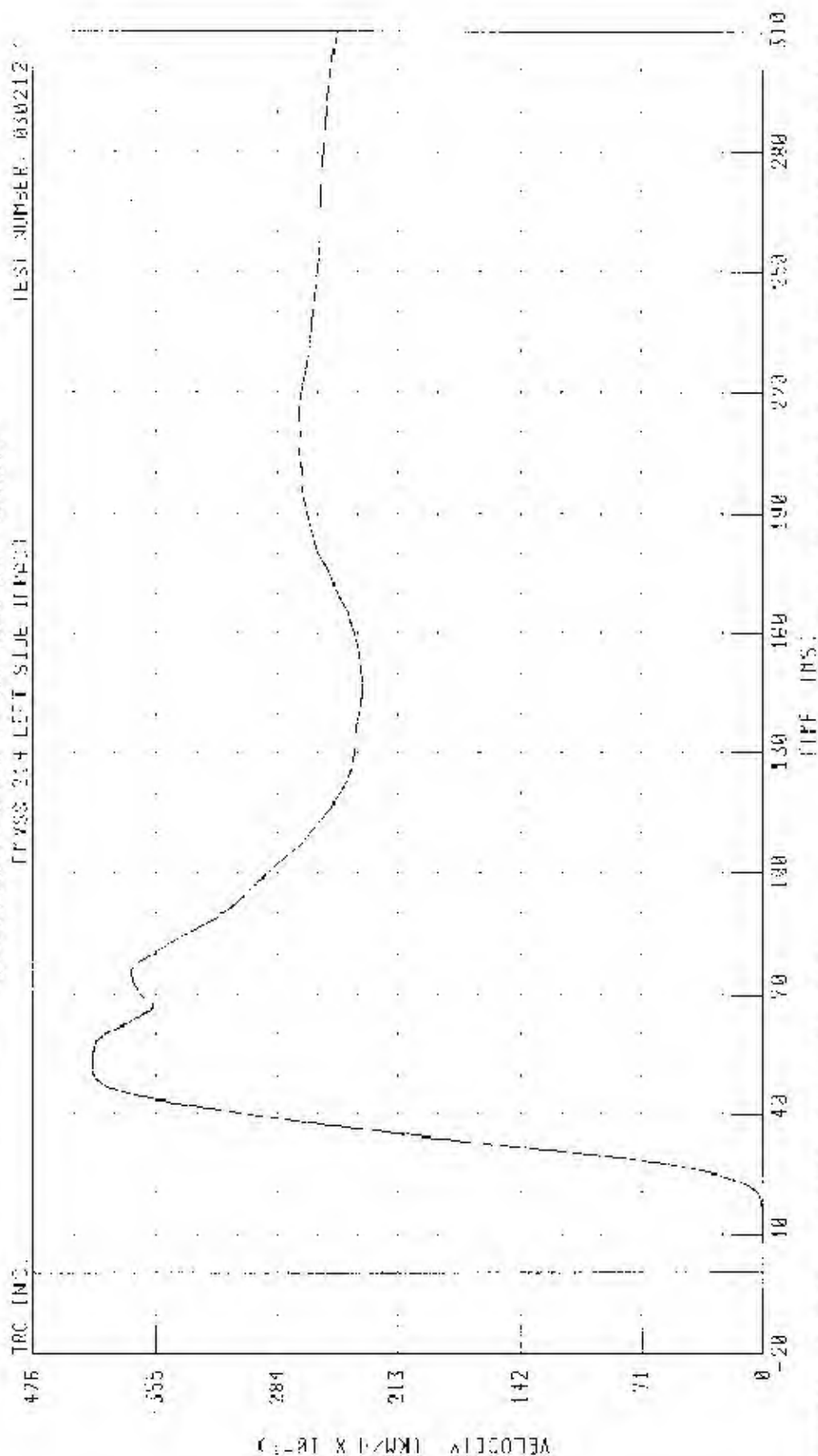
PEAK DATA: 65.00 G @ 3.34 MS, -17.70 G @ 63.04 MS

48/24 4FH 50 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2003 NISSAN SENTRA 5

DRIVER LOWER SPINE Y-AXIS REDUNDANT VELOCITY

TEST NUMBER: 030212

TRUCK 214 LEFT SIDE IMPACT



CUMMINS 1120VI FILTER CUMMINS 120

FIRE INS.

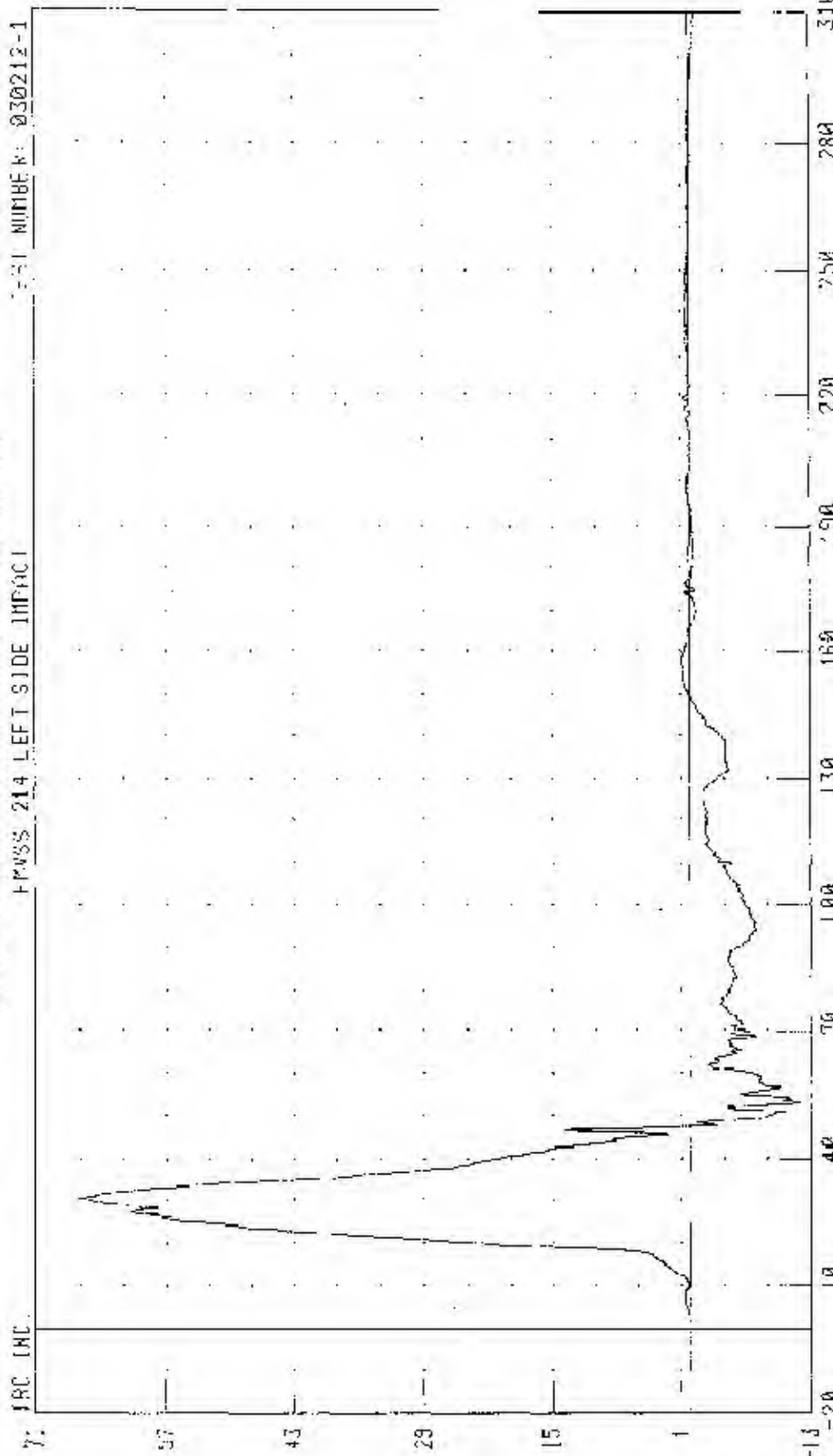
PEAK DATA: 39.10 KM/H @ 51.64 MS; 4.10 KM/H @ 0.30 IS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) IN O LEFT SIDE IF 2000 M200A PROJECE 5

DRIVER PELVIS Y-AXIS REBOUND/ACCERATION

TEST NUMBER: 030212-1

FMSS 214 LEFT SIDE IMPACT



TIME (MS)

CHANNEL: PEVYR1 FILTER: CH CLOSS 1000

PEAK DATA 55.45 G @ 38.42 MS, -11.92 G @ 53.28 MS

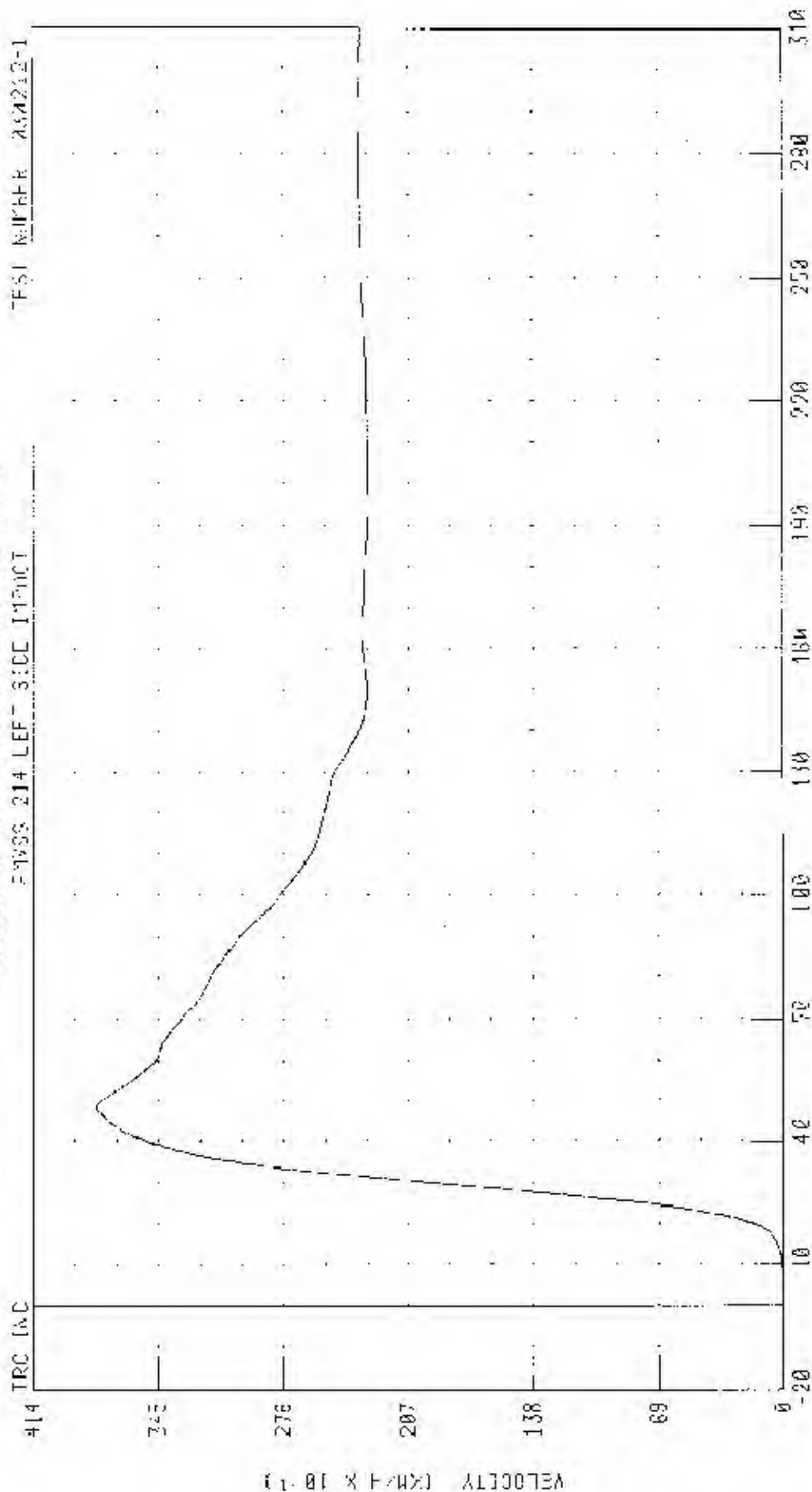
ACCELERATION (G)

48/24 KPH 00 DEGREED SIDE IMPACT CRASHING DEFORMABLE BARRIER, INTO LEFT SIDE OF 24M3 NO.10 PROTEGE 5

DRIVER PELVIS X AXIS REBOUND AT OCCUPY

FASS 214 LEFT SIDE IMPACT

TEST NUMBER 250212-1



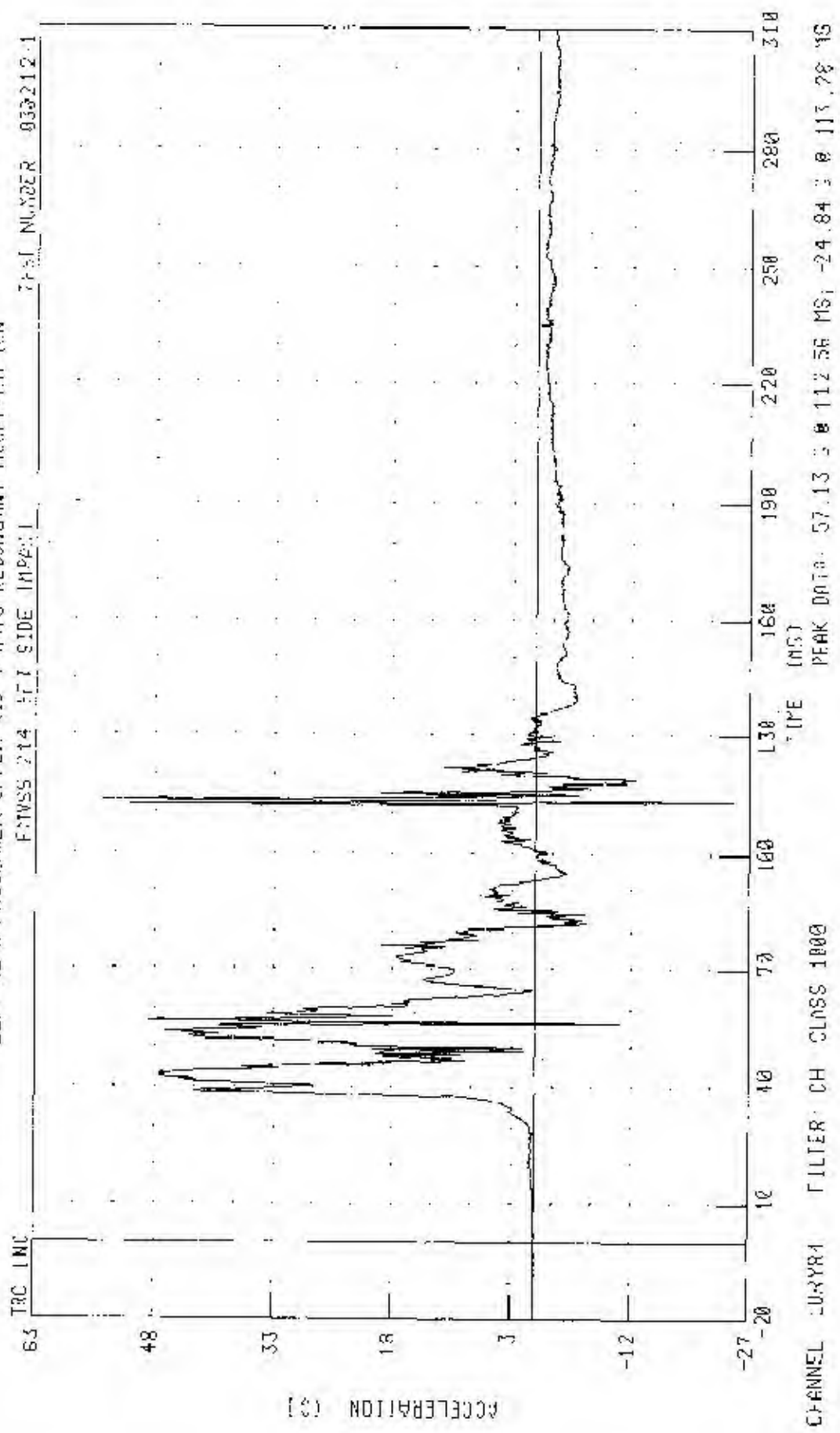
TIME (MS)

PEAK DATA: 37.94 KPH 0 47.00 MS, 0.00 KPH 0 0.00 MS

CHANNEL PELVWT FILTER CH CLASS 130

(1.01 X 10^4) ALLOCATED

48/24 KPH 90 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER INIC LEFT SIDE OF 2003 YF70A PROTECT 5
 LEFT REAR PASSENGER UPPER R13 Y-AXIS REDUNDANT ACCELERATION



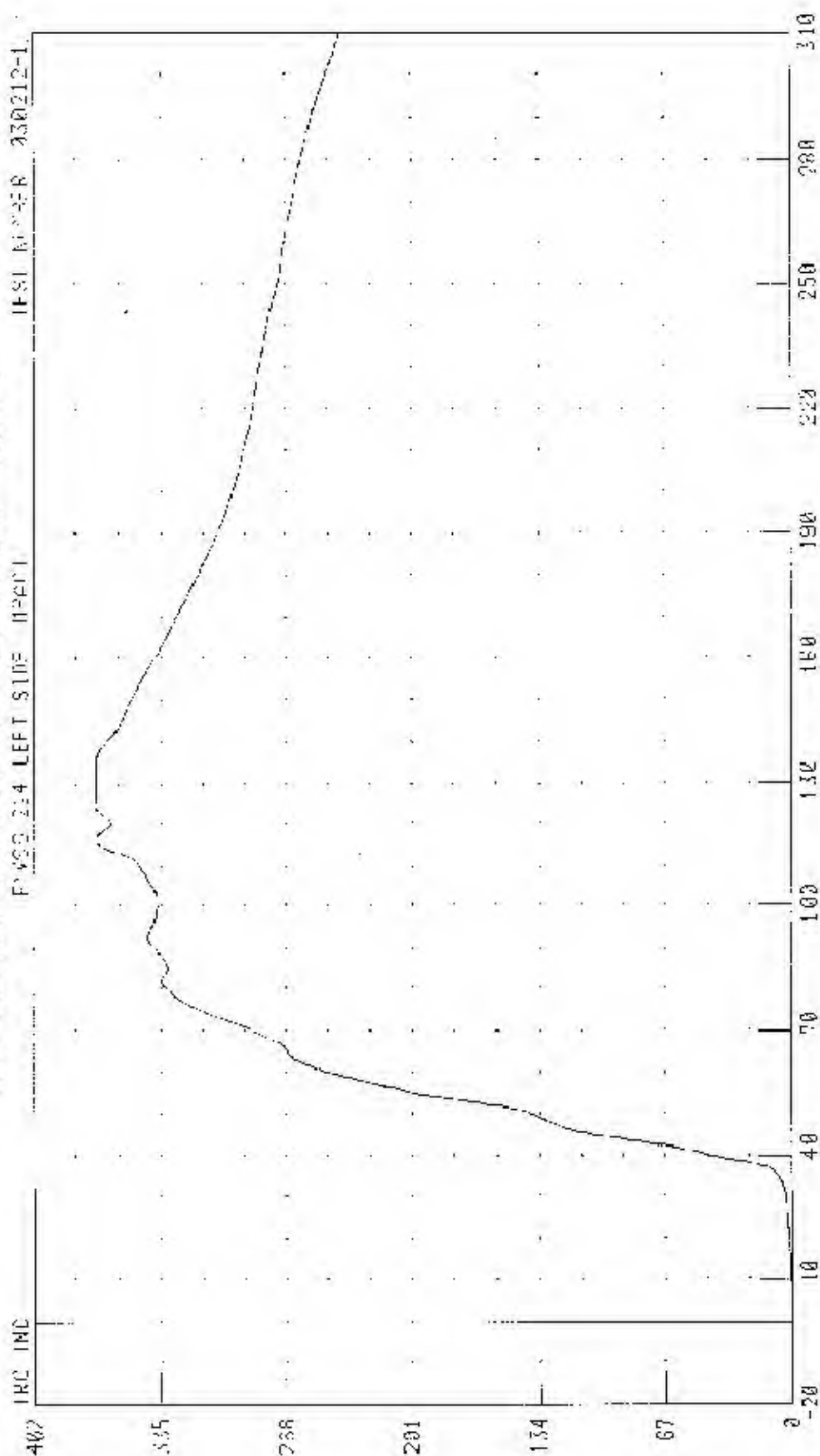
TEST NUMBER 030212-1

48/24 <P> 00 DEGREE SIDE IMPACT CRASHING DEFORMABLE BARRIER INTO LEFT SIDE OF 2003 MAZDA PROTECT 5

LEFT REAR PASSENGER UPPER RIB Y-AXIS REDUNDANT VELOCITY

TEST NUMBER 330212-1

PAGE 214 LEFT SIDE IMPACT



TIME (MS)

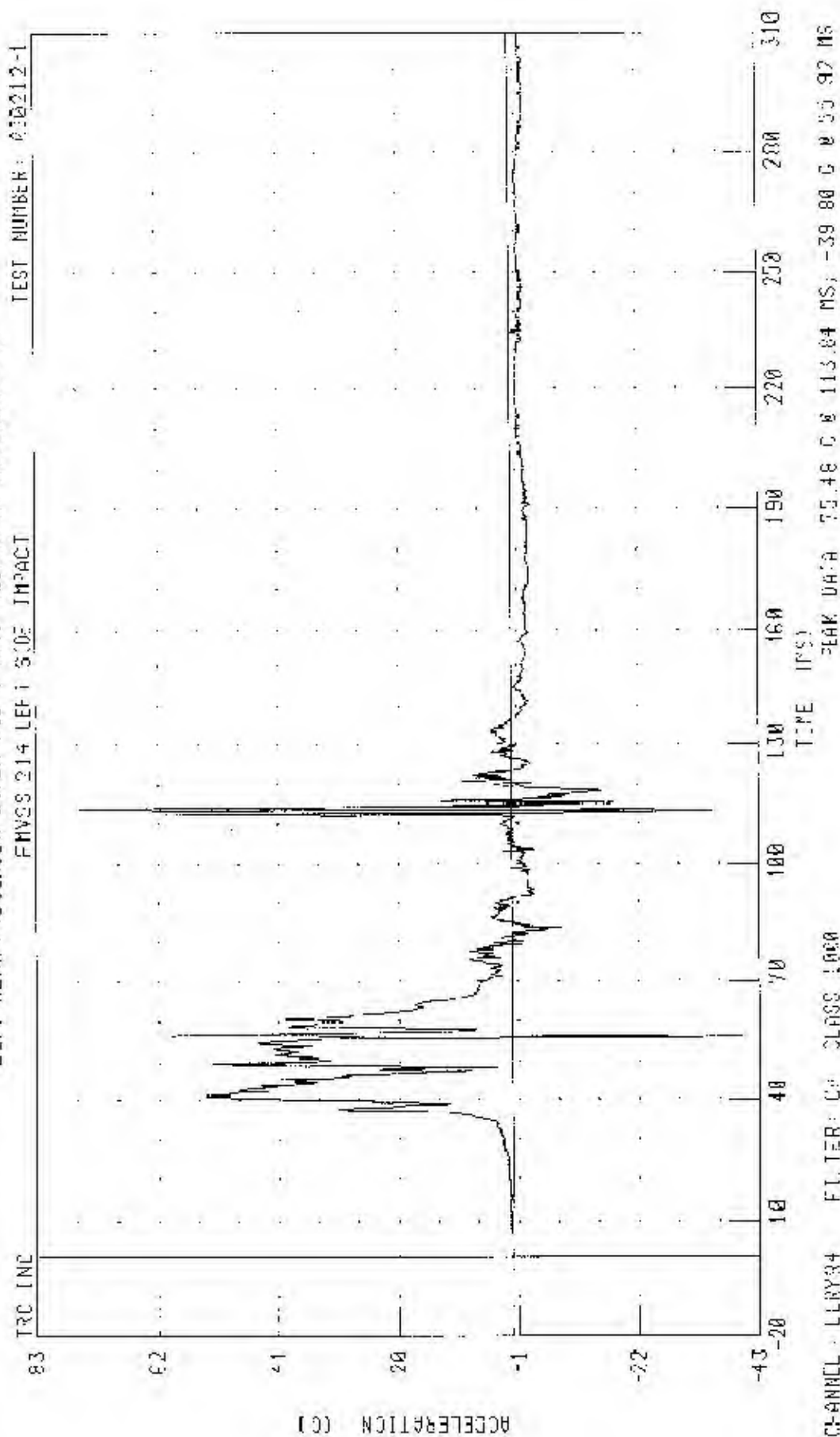
CHANNEL LURVJ FILTER CH. CLASS 100

PEAK DATA: 33.51 <M>H @ 124.80 MS, 2.30 KM/H @ 0.00 MS

(1-01 X 0-00) 4110075A

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PRUTEGE 5

LEFT REAR PASSENGER LOWER RIG Y AXIS REDUNDANT ACCELERATION



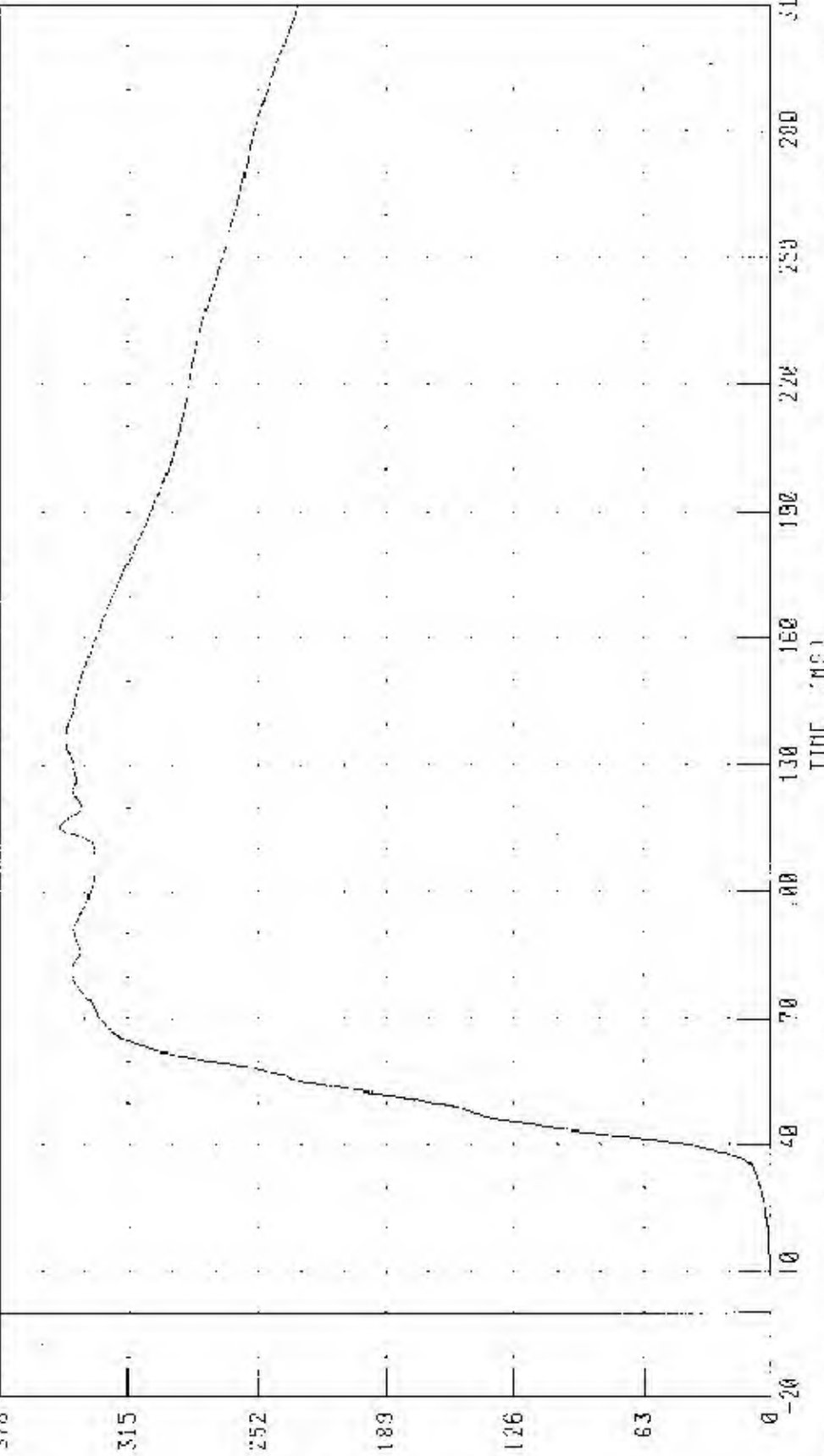
48/24 4PH 90 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 100% MODUM PROTECT 5

LEFT REAR PASSENGER LOWER AID V INIC REDUNDANT VELOCITY

378 30 INIC

FN33 214 LEFT SIDE IMPACT

IPSI NUMBER 032712 L



VELOCITY (KM/H X 10⁻³)

TIME (MS)

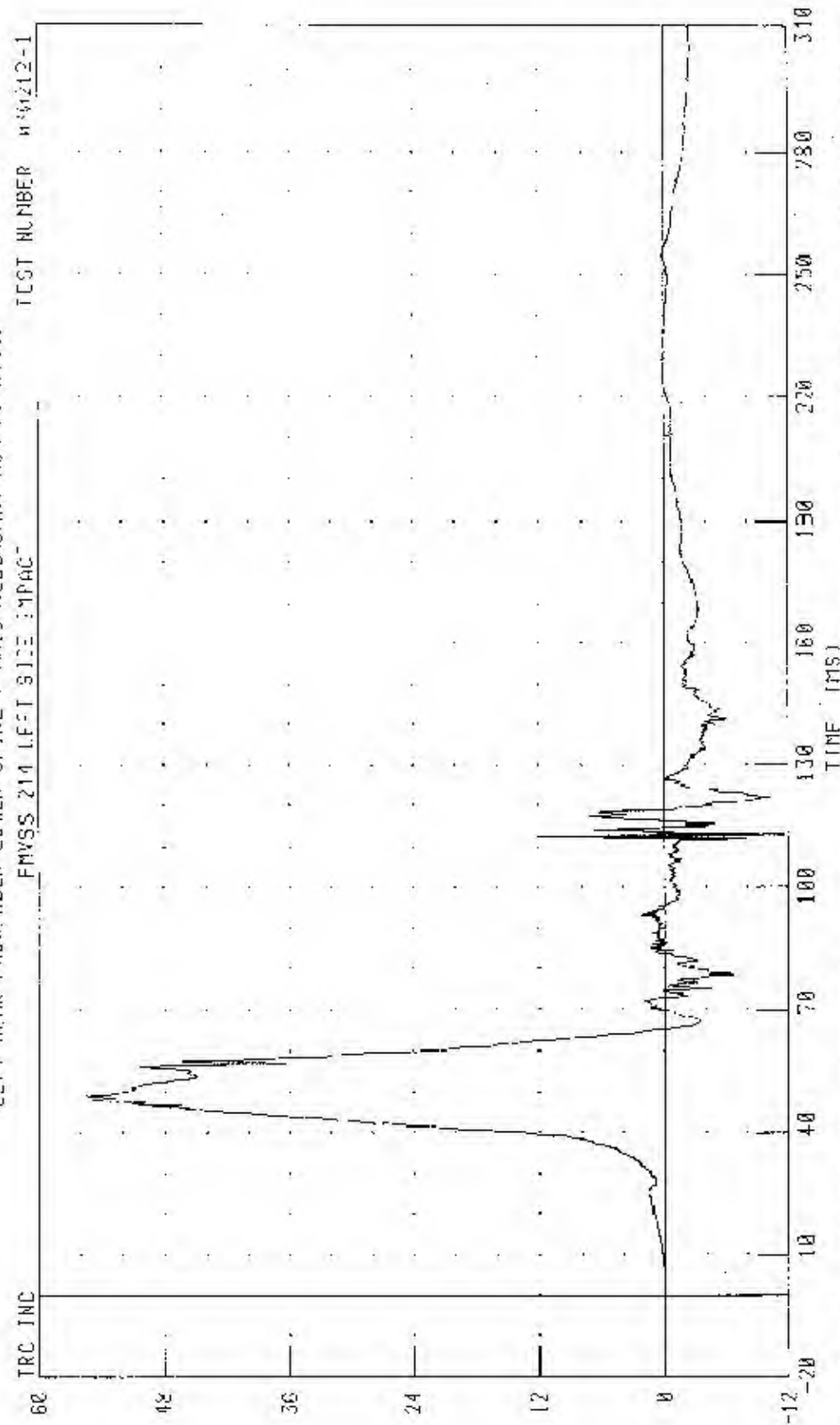
CHANNEL LIBYRJ

FILTER CH CLASS 130

PEAK DATA 34 90 4M/H 0 15 20 MS 0 00 4M/H 0 0 00 FS

48/24 KM/24 DEGREE SIDE IMPACT - MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2003 KATMA PRONTUEE 3

LEFT REAR PASSENGER LOWER SPINE Y AXIS REDUNDANT ACCELERATION



PEAK DATA: 55.45 G @ 49.23 MS; -1' BR @ 113.28 MS

CHANNEL: T12YR4 FILTER: CH. CLASS 1000

ACCELERATION (G)

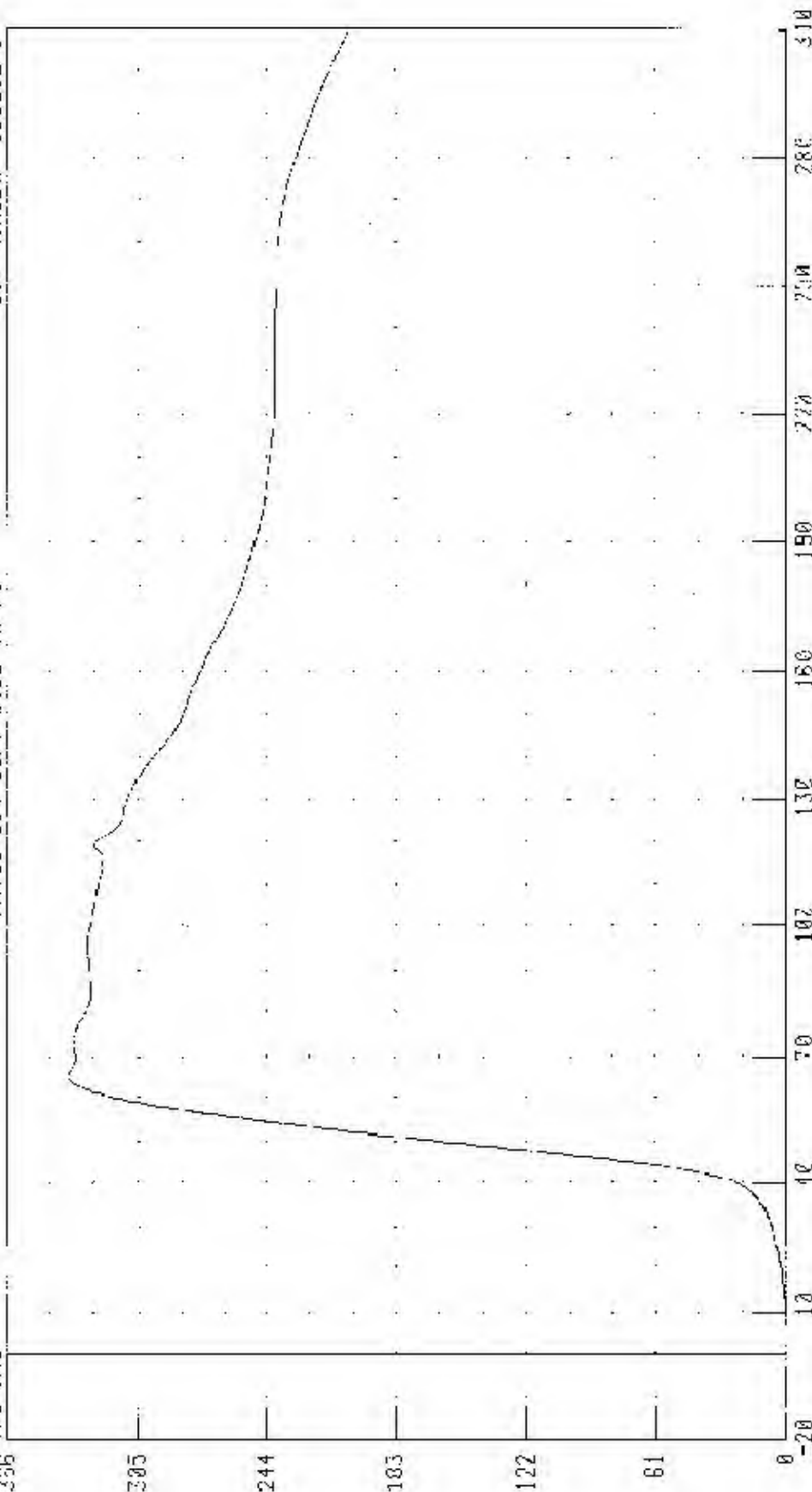
42/24 KPH 30 DEGREE SIDE IMPACT INVOLVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2007 MERCEDES-BENZ E350

LEFT REAR PASSENGER LOWER SPINE V-AXIS REDUNDANT VELOCITY

TEST NUMBER 030212-1

FMVSS 214 LEFT SIDE IMPACT

TRC INC



VELOCITY (KM/H) X 10⁻¹

TIME (MS)

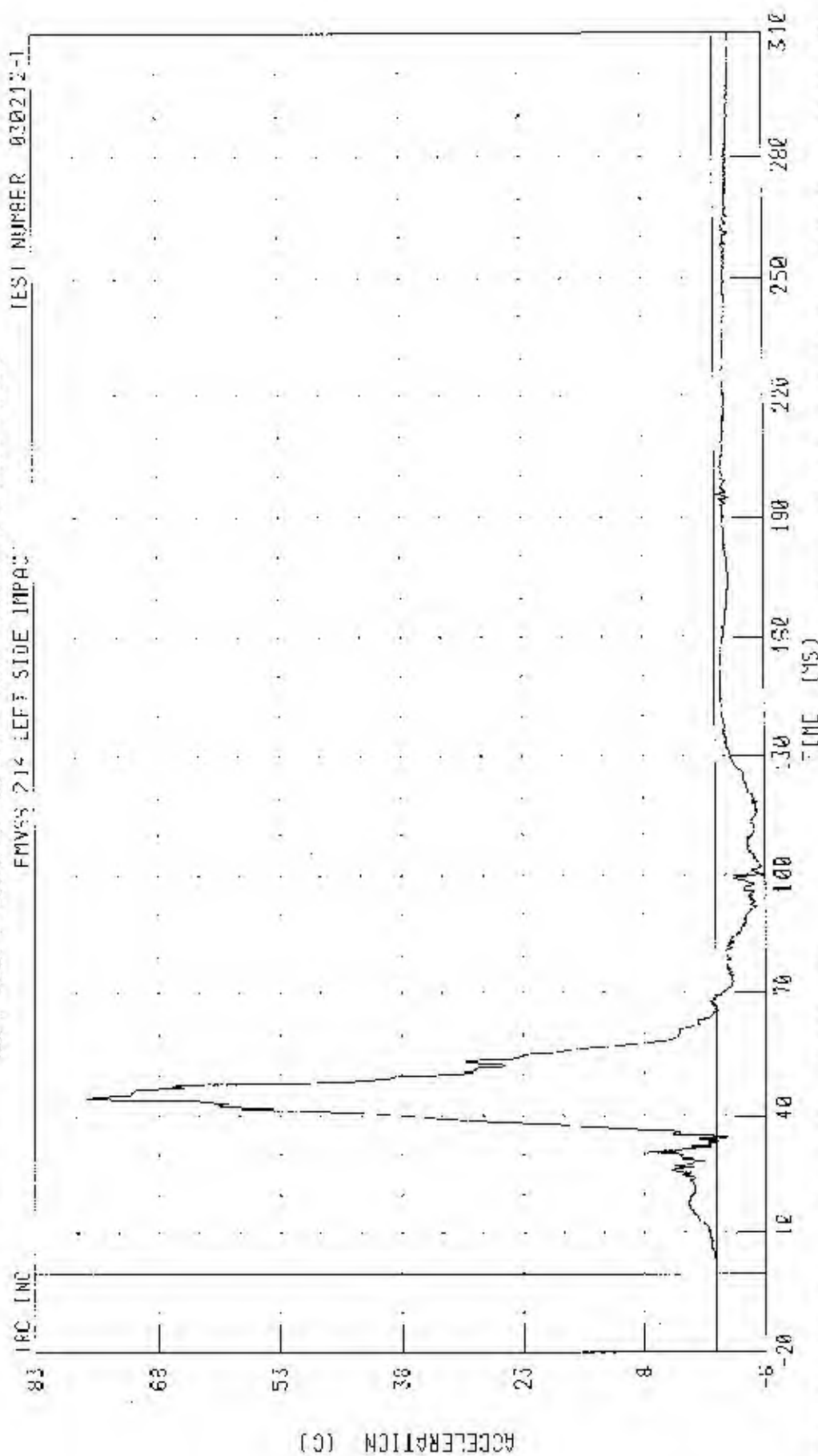
PEAK DATA: 33.71 KPH 0.55 20.13; 0.00 KPH 0.00 1.0

CHANNEL: 112YVJ FILLER: 0% CLASH: 180

48/24 KPH 90 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 1985 MAZDA PROTEGE 5
 LEFT REAR PASSENGER PELVIS Y AXIS REDUNDANT ACCELERATION

TEST NUMBER 030212-1

FMVSS 214 LEFT SIDE IMPACT



CHANNEL: FEVYR4 ILLIUM. CH. CLASS 1000

PEAK DATA 77.07 G @ 41.72 MS, -5.63 G @ 192.48 MS

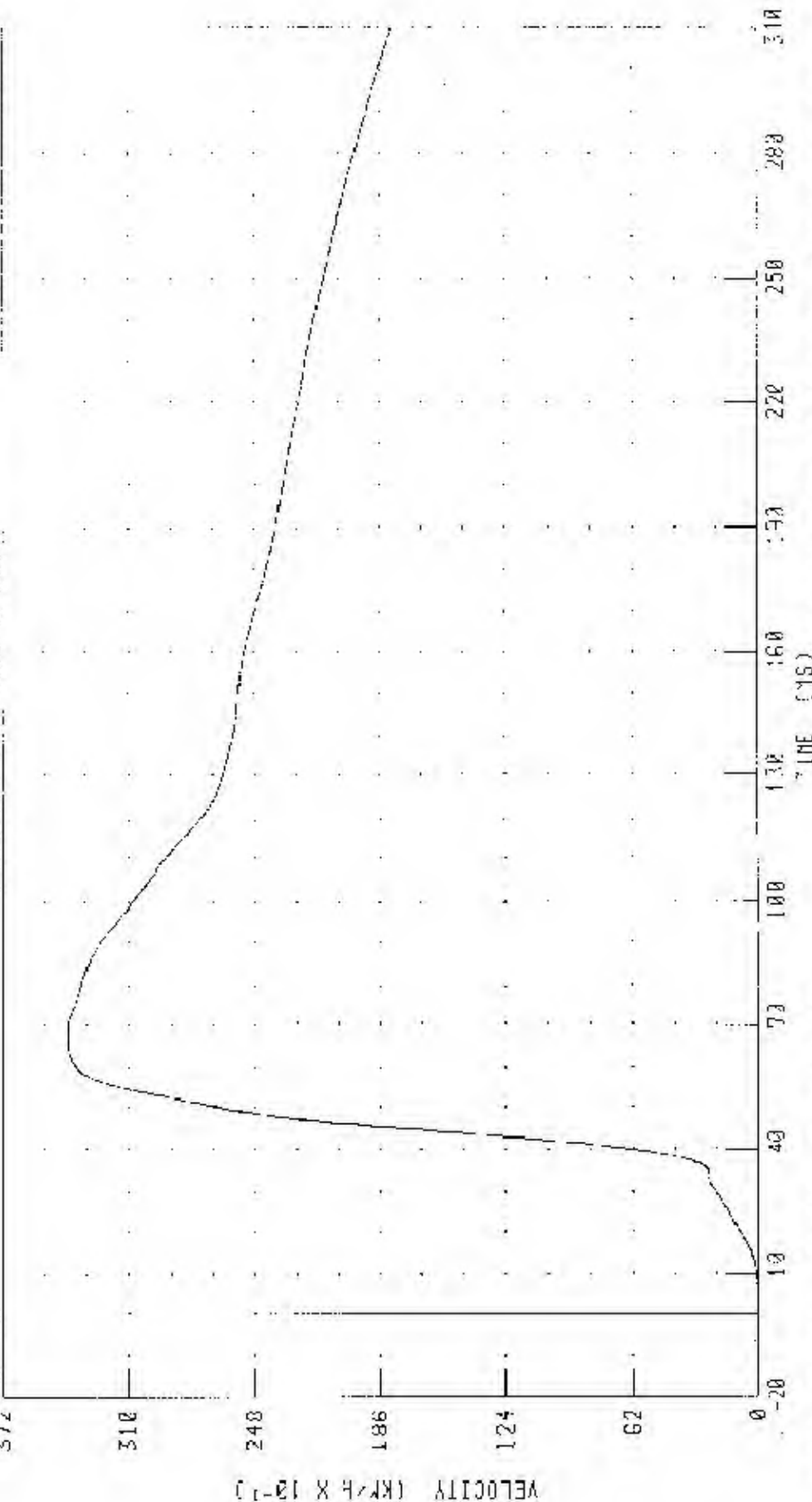
48/24 MPH 40 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2025 FORD PROTECTOR

LEFT REAR PASSENGER PIVOT Y-AXIS REDUCED VELOCITY

FMSG 214 LEFT SIDE IMPACT

372 INCH

TEST NUMBER: 030212-1



TIME (MS)

CHANNEL PFVYUJ FORTER CH CLASS 130

PEAK 797A 33.90 KPH/4 0 68 88 MS, 0 20 KPH/4 0 0 00 MS

Test Vehicle Instrumentation Plots

Acceleration Data - Filter Class 60

Integration Data - Filter Class 180

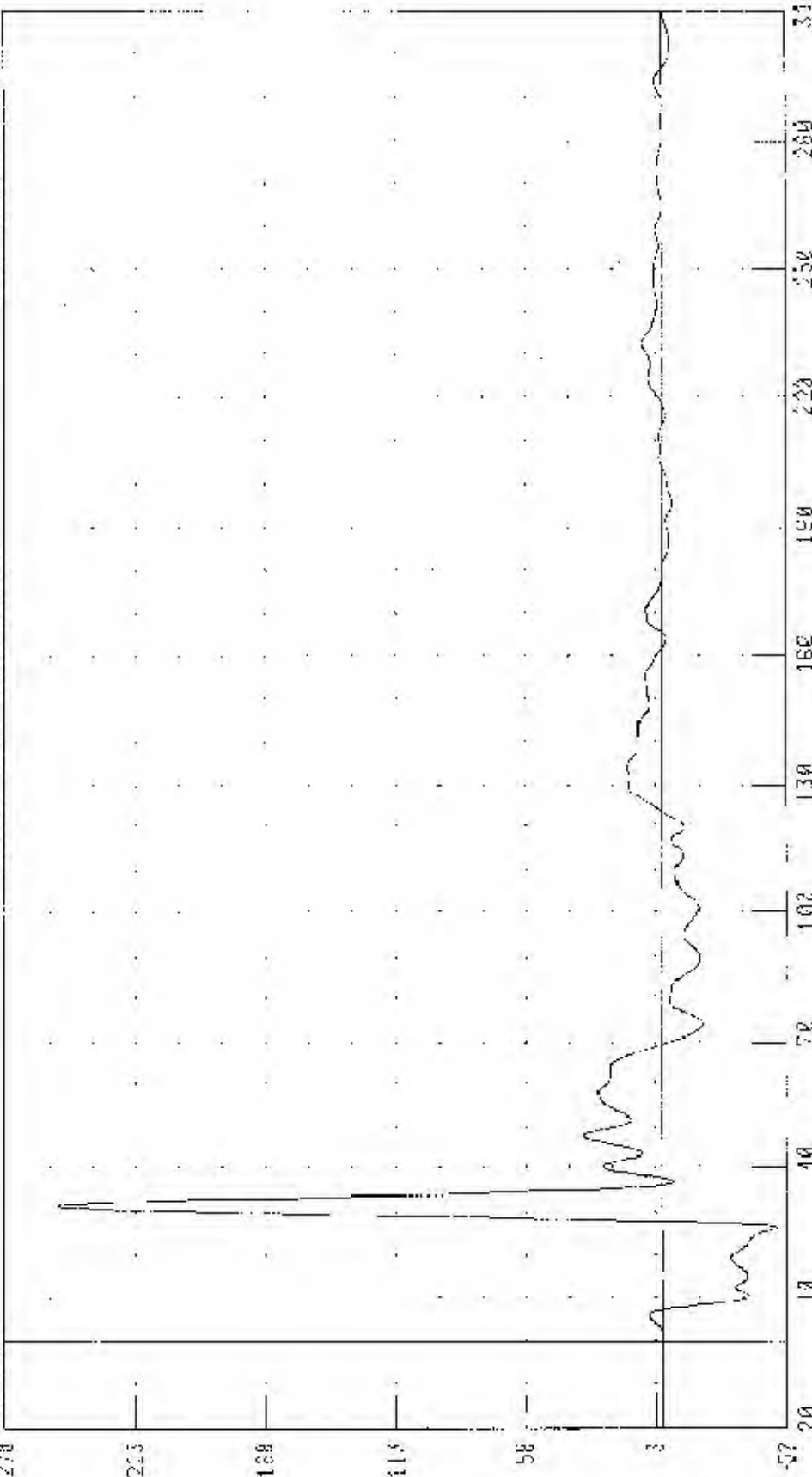
43/24 MPH 90 DEGREE STOP IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2003 1970A FORD F5

FILE NAME: 5011 AT FRONT SEAT X-AXIS ACCELERATION

TEST NUMBER: W30212-1

SEVERE 214 LEFT SIDE IMPACT

TRC INC.



TIME (MS)

CHANNEL: R5001 FILTER: C-CLASS 60

PEAK DATA: 25.00 G @ 31.84 MS, -4.78 G @ 23.08 MS

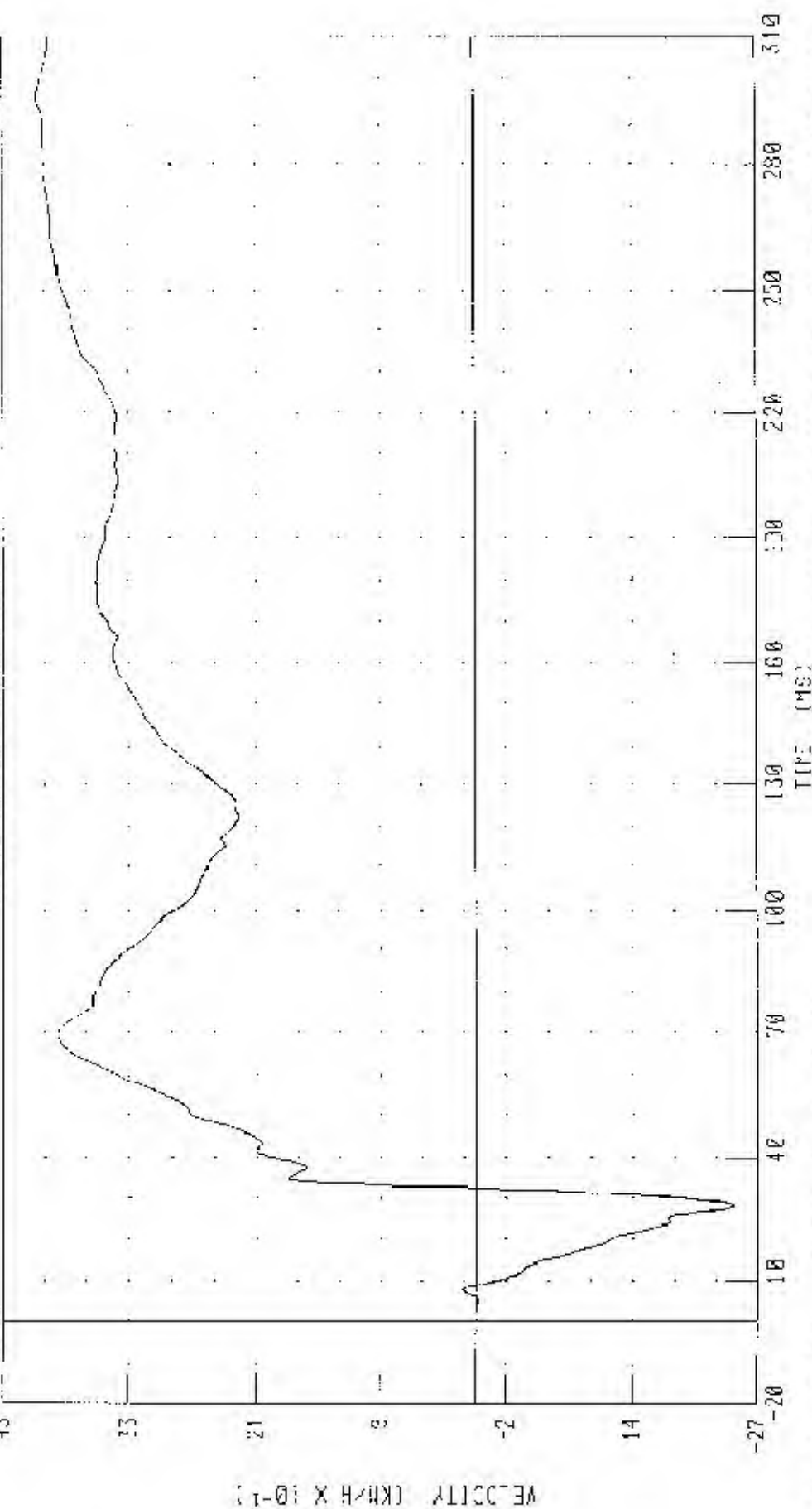
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 YAZDA PROTEGE S

RIGHT SIDE GILL AT FRONT SEAT X-AXIS VELOCITY

FPVSS 214 LEFT SIDE IMPACT

45 (IN) IND.

TEST NUMBER 030212-1



CHANNEL: REFXY1 FILTER: CH CLASS 180

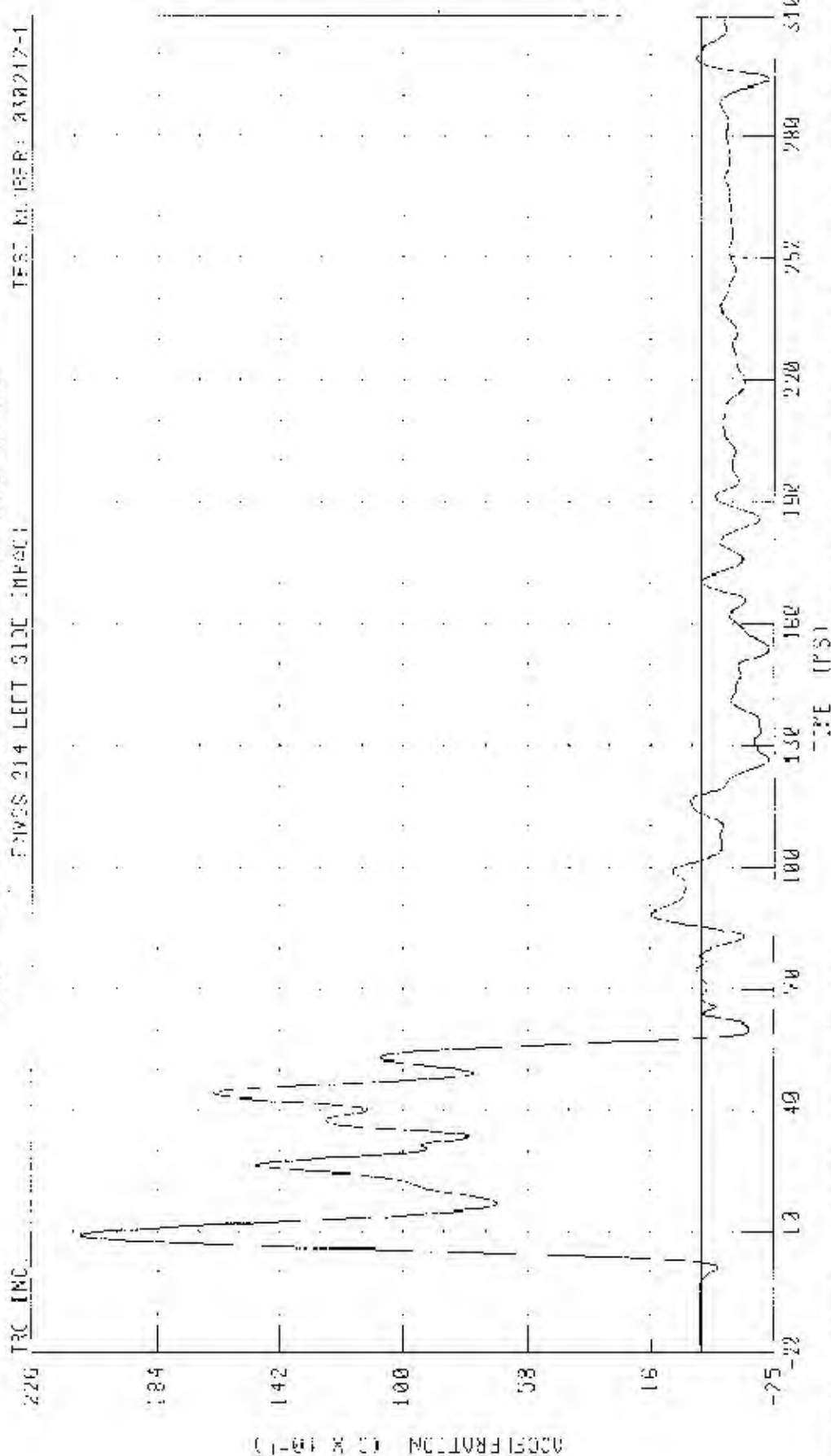
PEAK DATA: 4 17 (M/H @ 293.62 MS, -2.49 (M/H @ 28 24 MS

48/24 KPH SW DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2003 F4ZD4 PROTEGE 5

RIGHT SIDE S11 AT FRONT SEAT Y-AXIS ACCELERATION

TEST NUMBER: 330212-1

TRC INC. FIVES 214 LEFT SIDE IMPACT

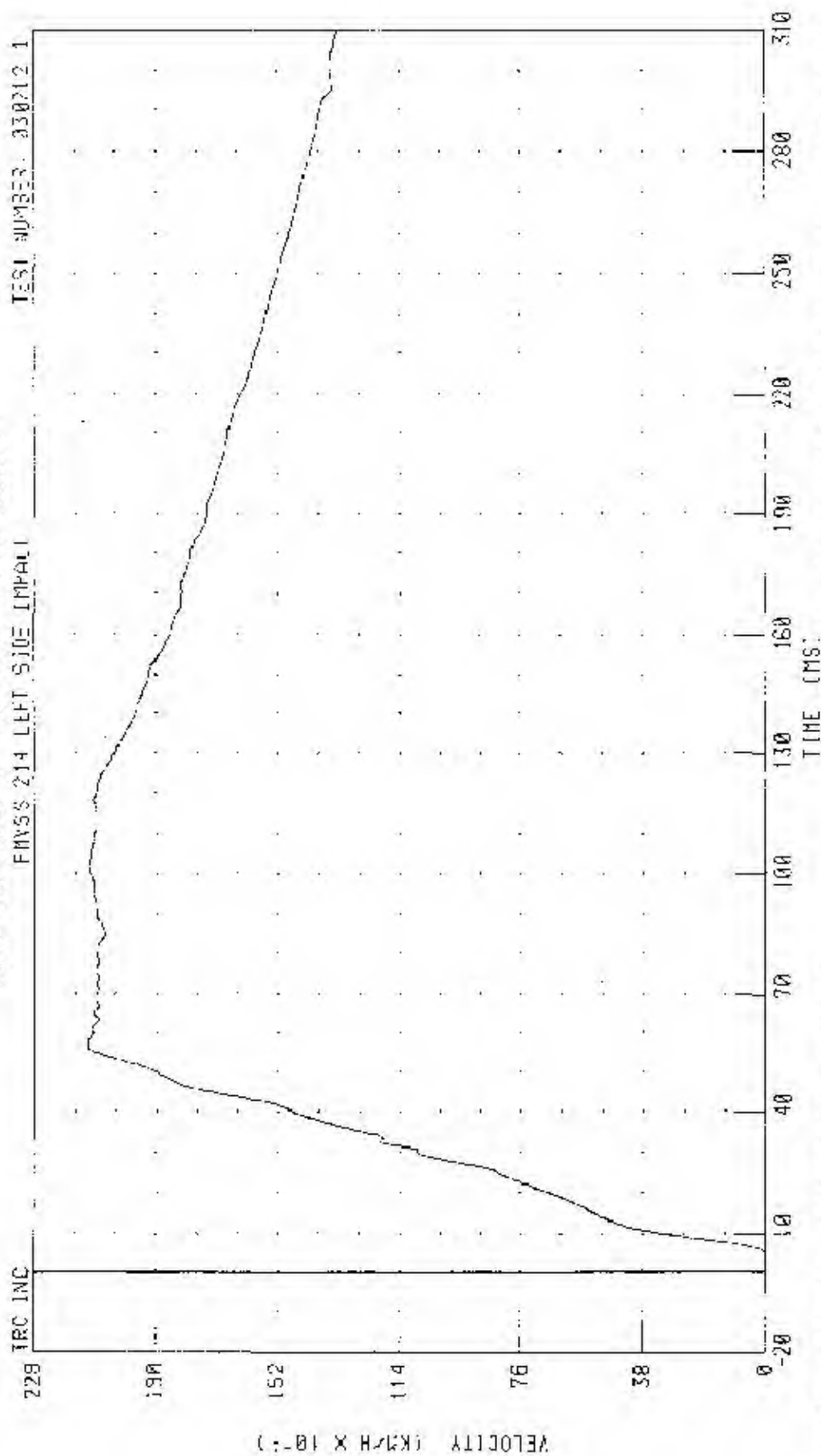


CHANNEL: RFSYG1 FILTER: CH CLASS: 60

PEAK DATA: 21 10 5 0 0.20 10, 2.34 3 0 203.84 18

48/24 MPH 00 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 HAZDA PROTEGE 5

RIGHT SIDE SILL AT FRONT SEAT Y-AXIS VELOCITY



CHANNEL: RFSV1 FILTER: CH CLASS 182

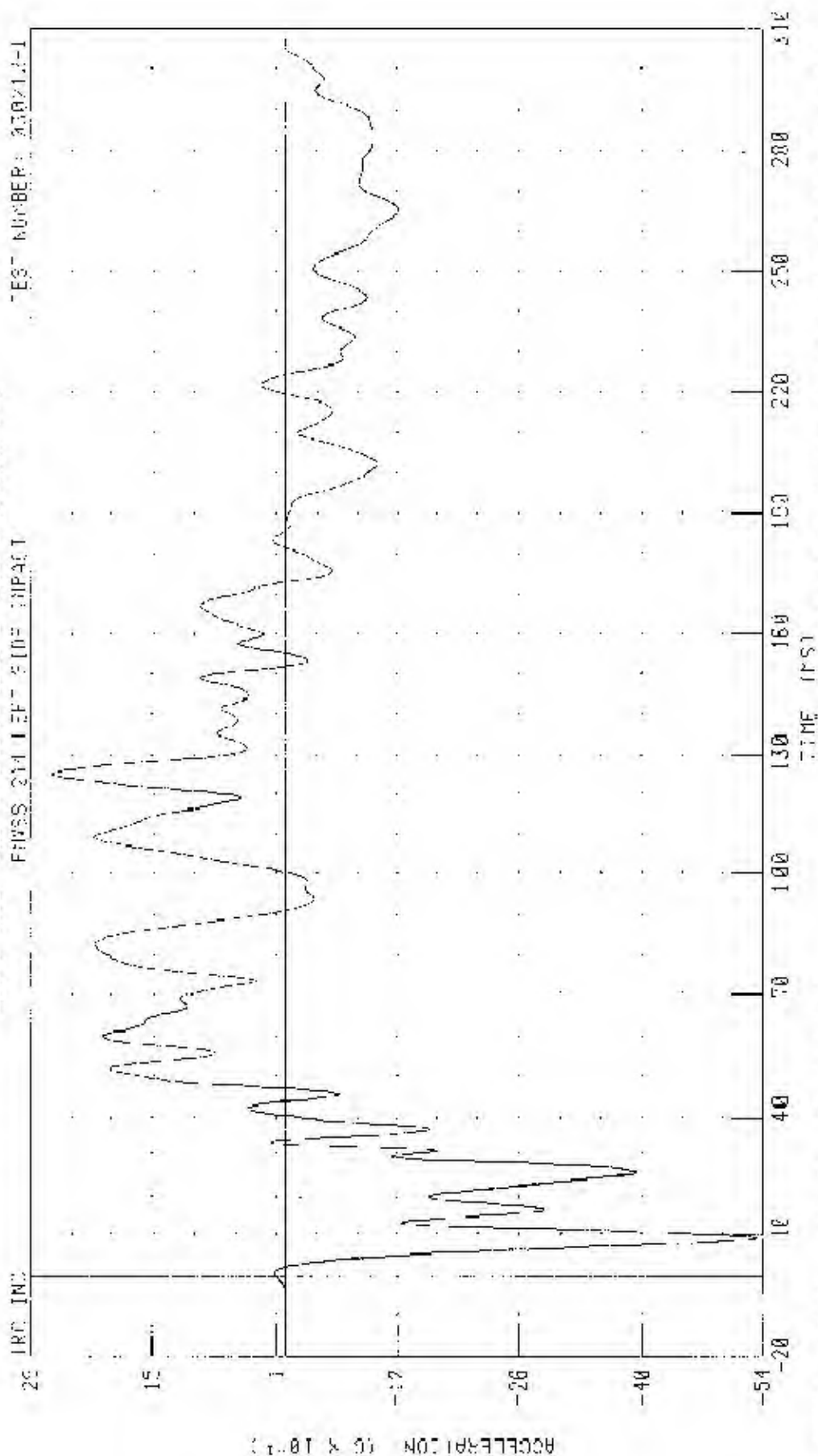
PEAK DATA: 21.18 KM/H @ 57.20 MS; -0.21 KM/H @ 4.24 MS

48/24 KPH 90 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER TEST SET-UP 2803 HAZARD PROTECT 2

R-001 SIDE HILL 4 FRONT SEAT Z-AXIS ACCELERATION

FWSS 214 LEFT SIDE IMPACT

TEST NUMBER: 210212-1

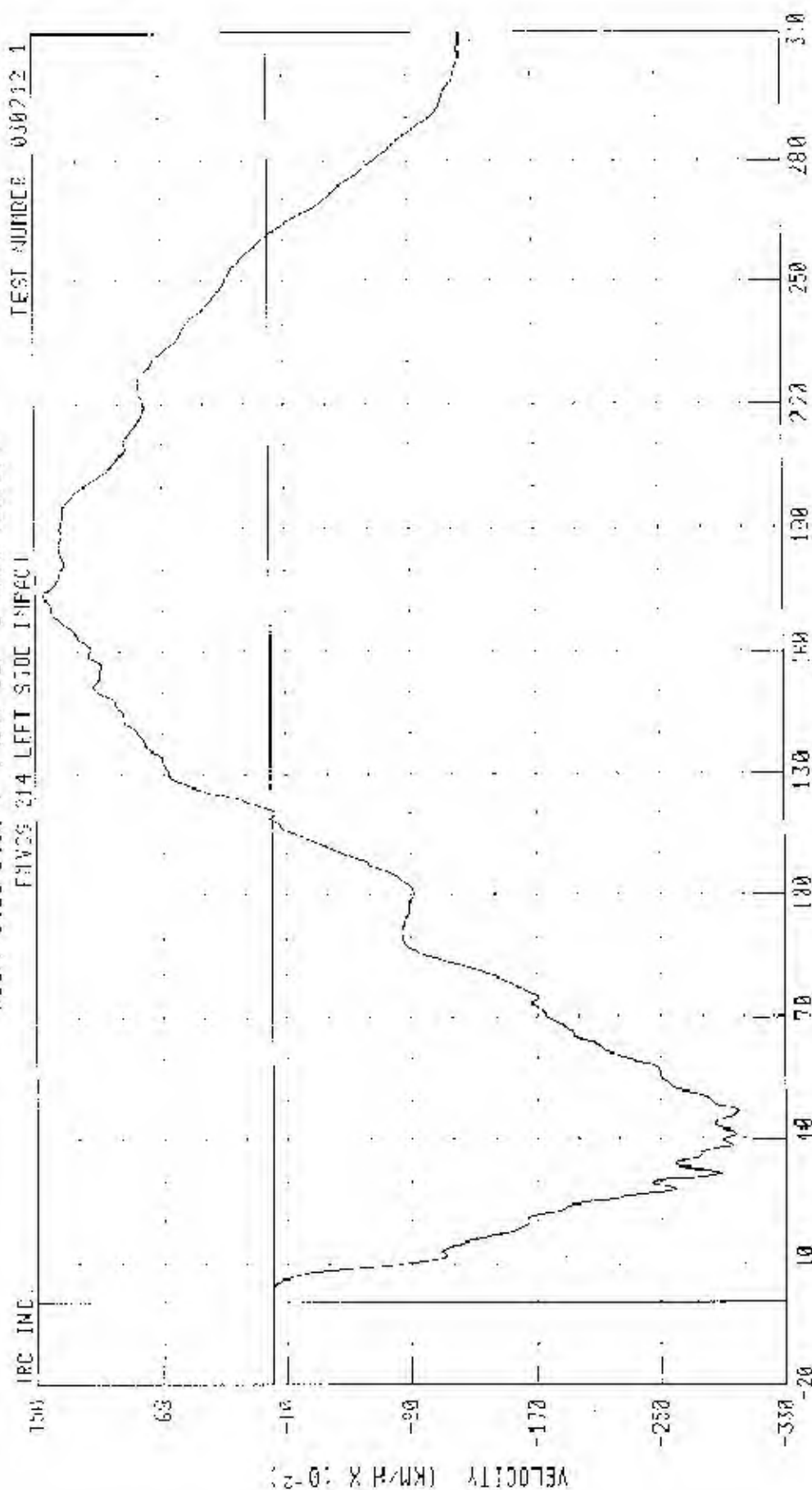


CHANNEL: RES201 FILTER: CH CLASS: 60

PEAK DATA: 2.68 G @ 125.28 MS, -5.14 G @ 8.80 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFERRABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

RIGHT SIDE SILL AT FRONT SEAT Z-AXIS VELOCITY

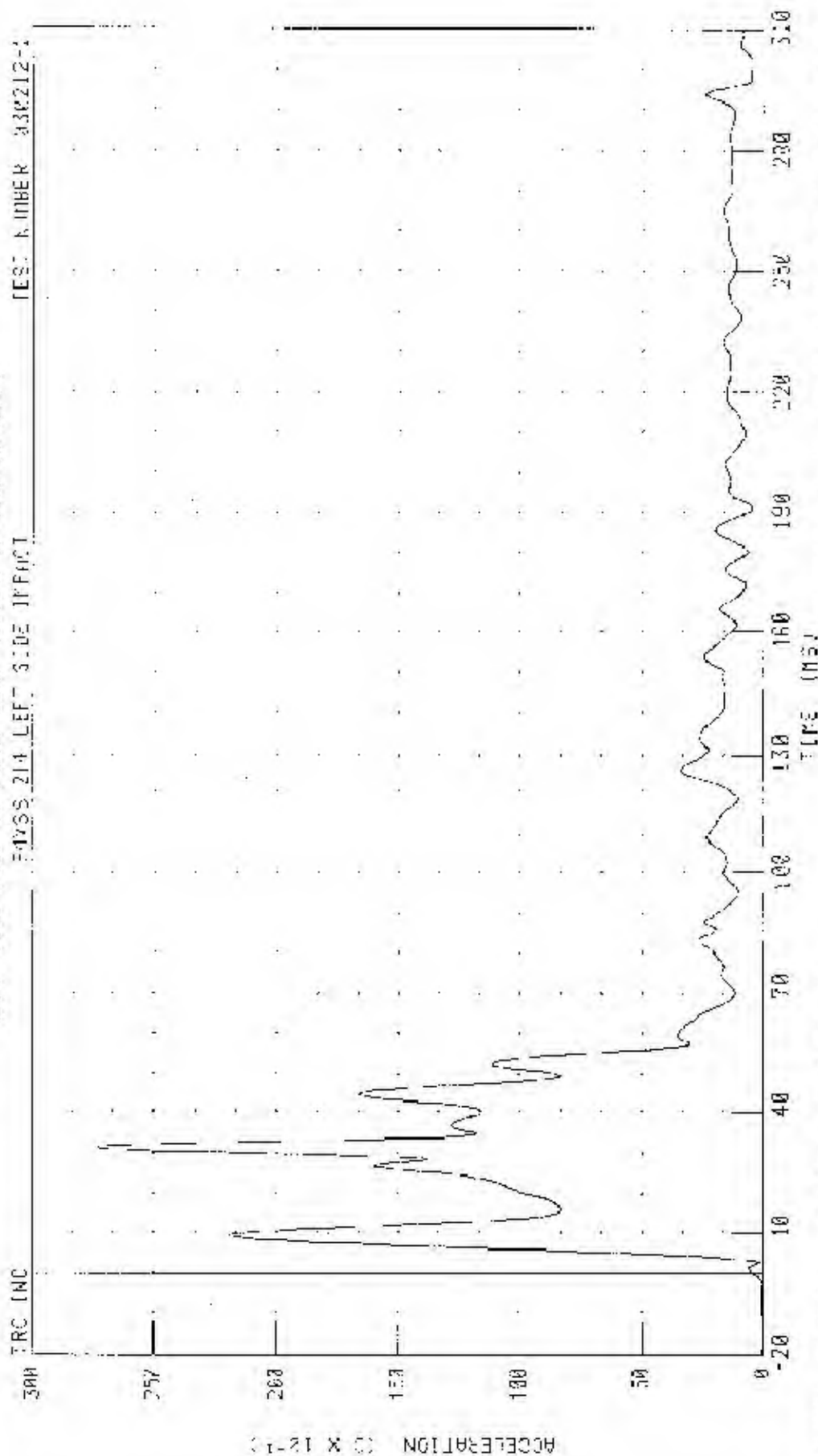


PEAK DATA: 1.45 KPH-1 @ 173.20 MS. 2.99 KPH @ 16.95 MS

CHANNEL RFS2V1 FILTER CH. CLASS 180

48/24 KPH 90 DEGREE SIDE IMPACT MOVING DEFORMABLE SURR.FRM INTO LEFT SIDE OF 2007 PACE PROTEGE S

RIGHT SIDE STILL AT FRONT SEAT RESULTANT ACCELERATION

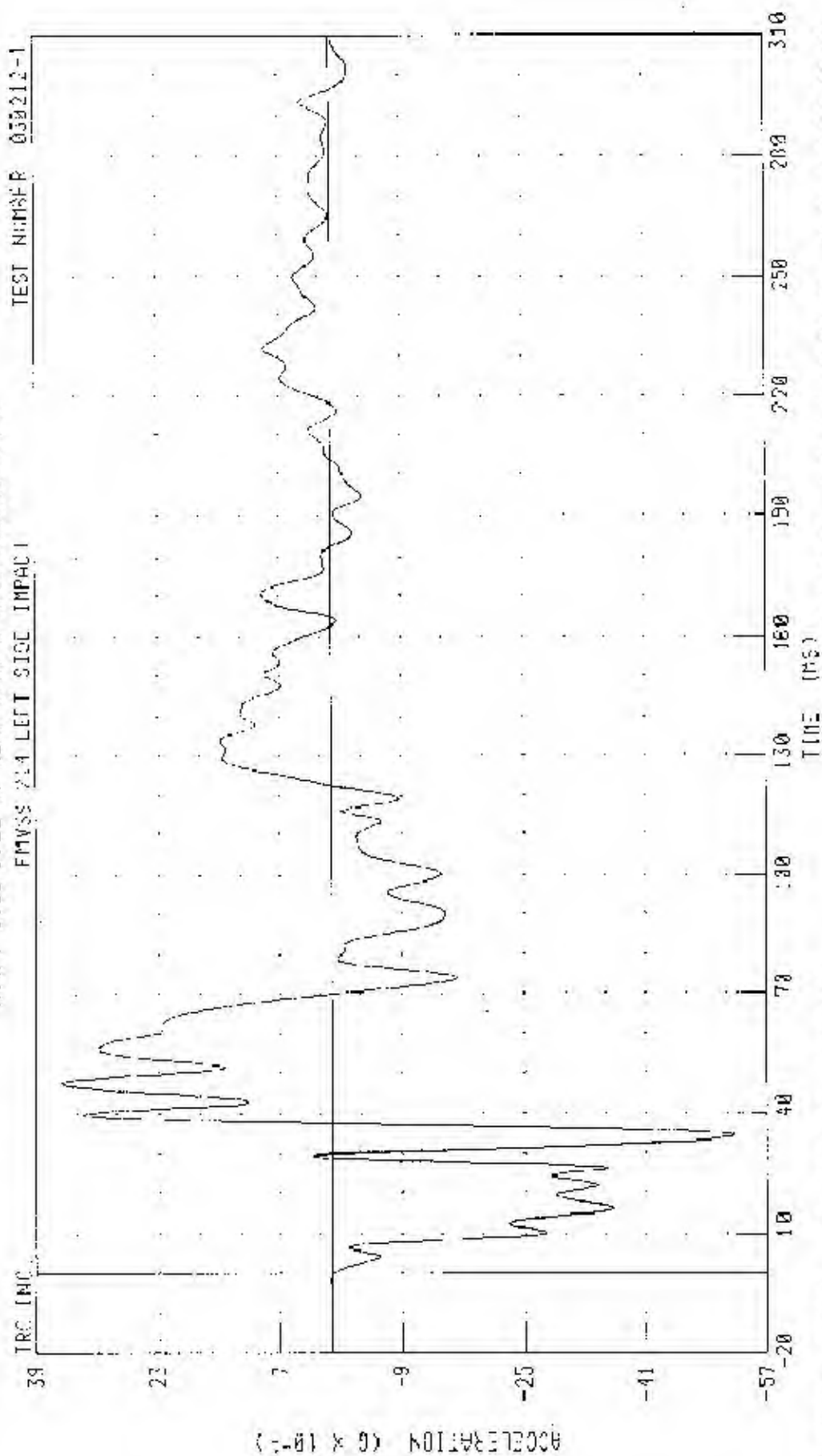


CHANNEL RFRG1 FILTER: CF CLASS 60

PEAK DATA: 27.27 G @ 31.76 MS, 0.013 G -18.00 MS

48/74 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2023 NACD66 PROJECT 5

RIGHT SIDE SILL AT REAR SPOT X-AXIS ACCELERATION



CHANNEL - RRSXC: FILTER - CH. CLASS 60

PEAK DATA: 350.0 @ 47.52 MS, -5.77 G @ 33.92 MS

48/24 PII 90 DEGREE SIDE IMPACT CRASHING DEFURGABLE BARRIER 1970 LEFT SIDE OF 2003 W420 PROTECTED 5

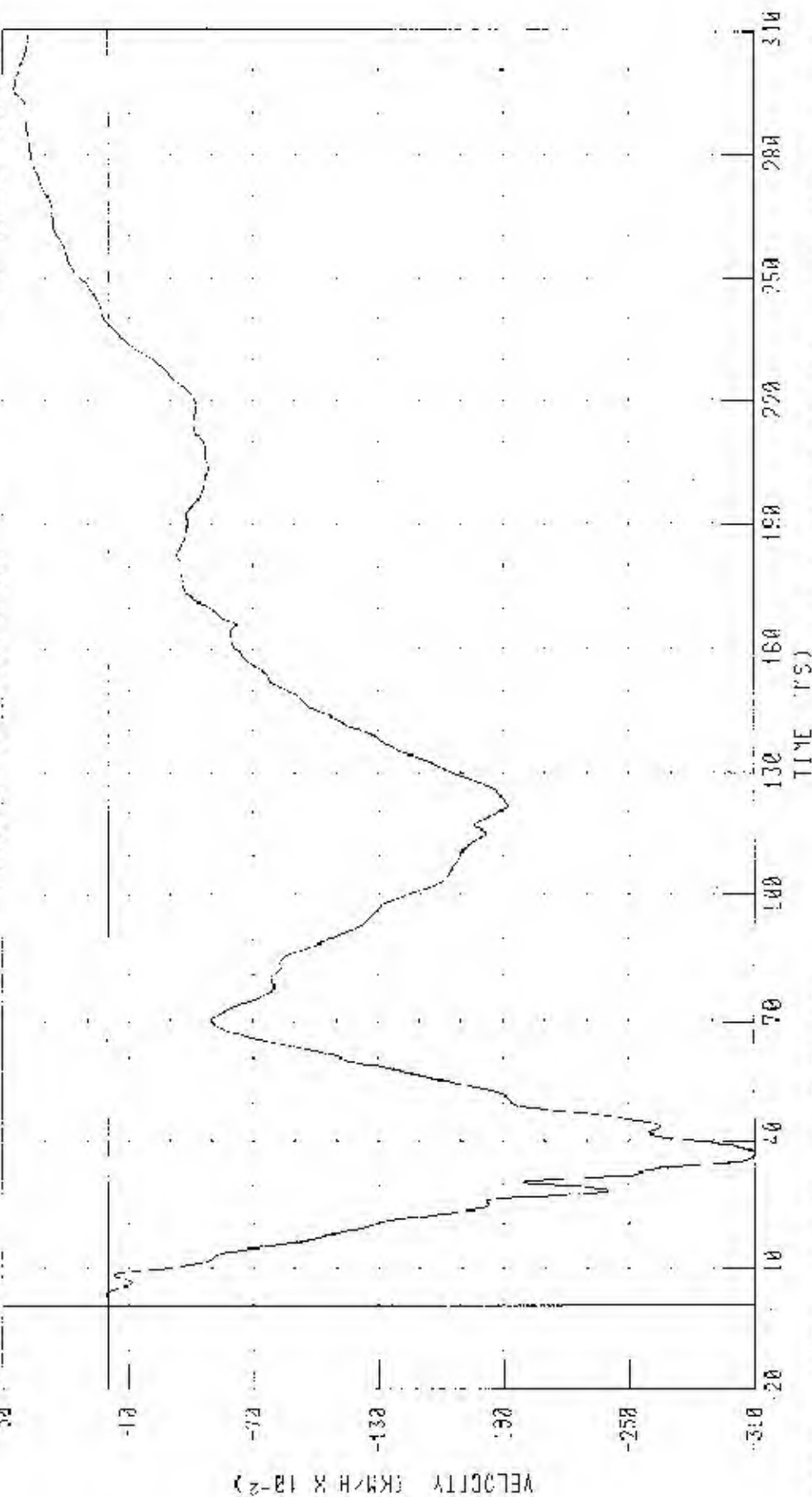
PROCESSES IN THE REPAIR OF

ISSN SUMMER 93/9212-1

FMVSS 214 LEFT SIDE IMPACT

14C INCS

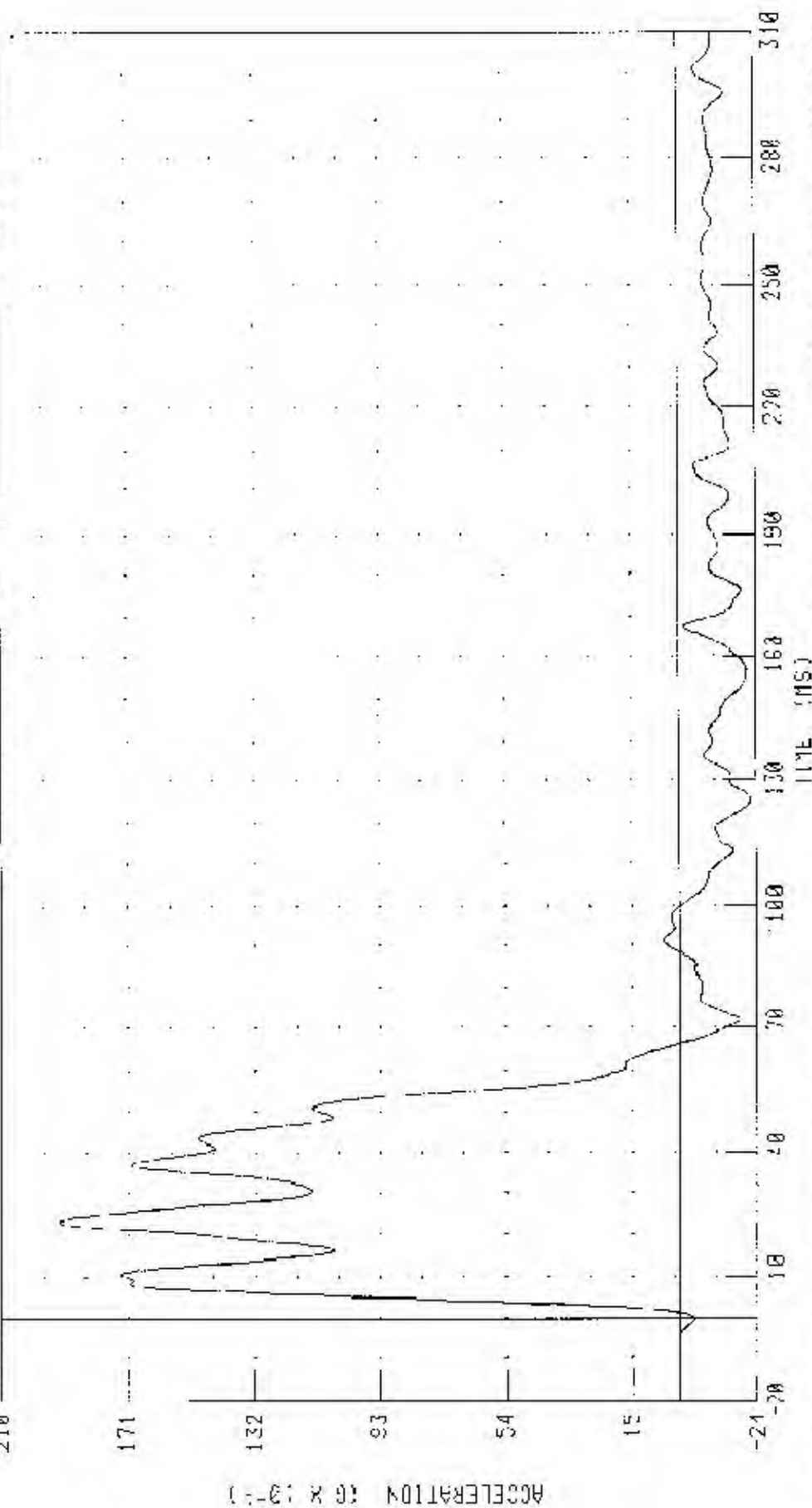
ISSN SUMMER 93/9212-1



46/24 MPH 90 DEGREE SIDE IMPACT INVOLVING DEFORMER B BARRIER INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

RIGHT SIDE SILL AT REAR SEAT Y-AXIS ACCELERATION

TRC INC 210 FMYSS 214 LEFT SIDE IMPACT TEST NUMBER 030212-1

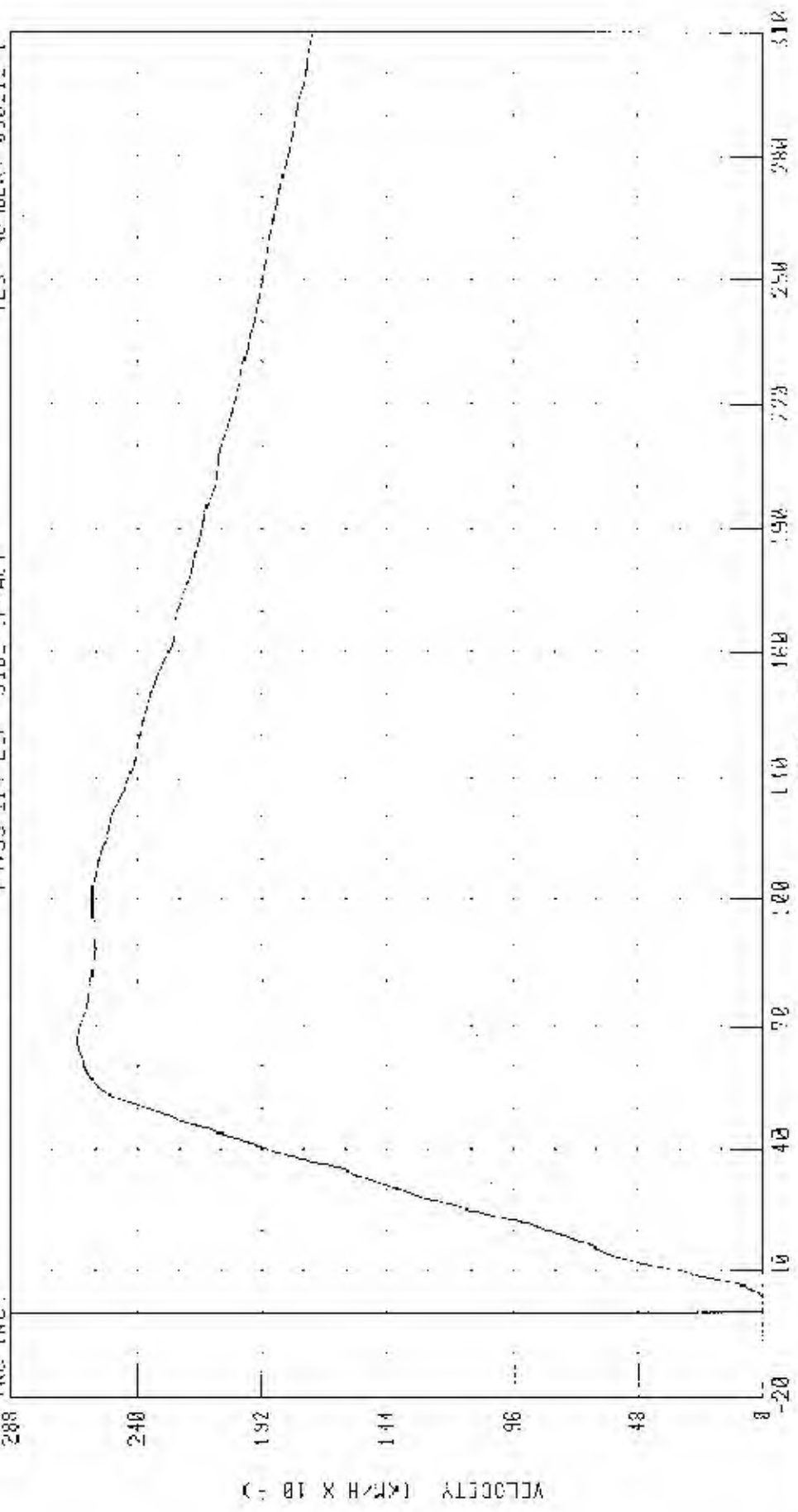


CHANNEL HRSYC1 FILTER: CH CLASS 60 PEAK DATA: 19.24 G @ 23.52 MS. -7.24 G @ 125.28 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING AFFENDABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 3

RIGHT SIDE SILL AT REAR SEAT 7-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT IES NUMBER: 030212-1

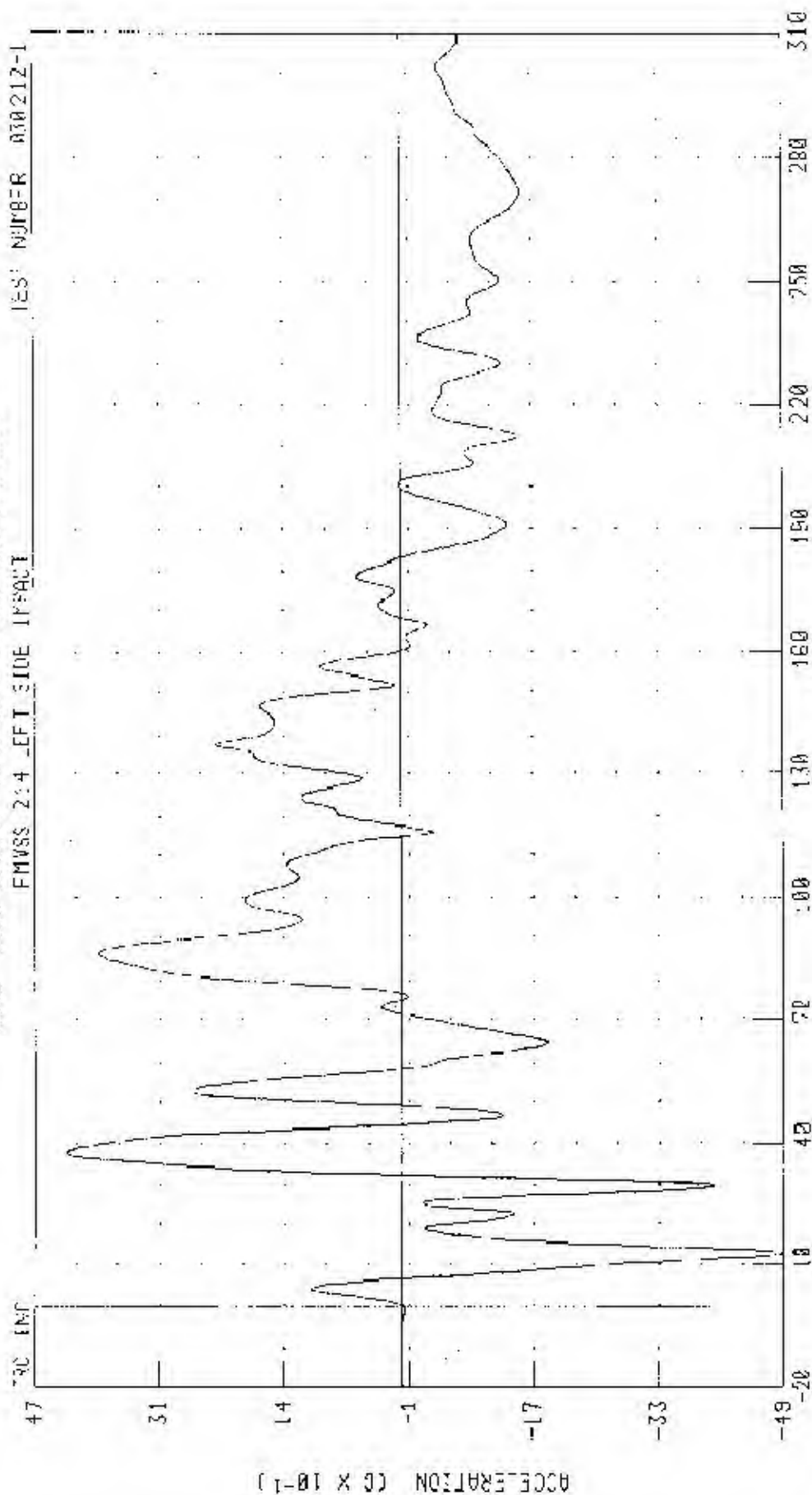


CHANNEL: RESY71 FILTER: CH GLASS 100
 TIME (MS)
 PEAK DATA 20 31 KPH 90 DEGREE SIDE IMPACT IES NUMBER: 030212-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 HAZOP PROTEGE 5

RIGHT SIDE SILL AT REAR SEAT Z-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT TEST NUMBER 030212-1



CHANNEL ORSZC: FILTER: CH. CLASS 00

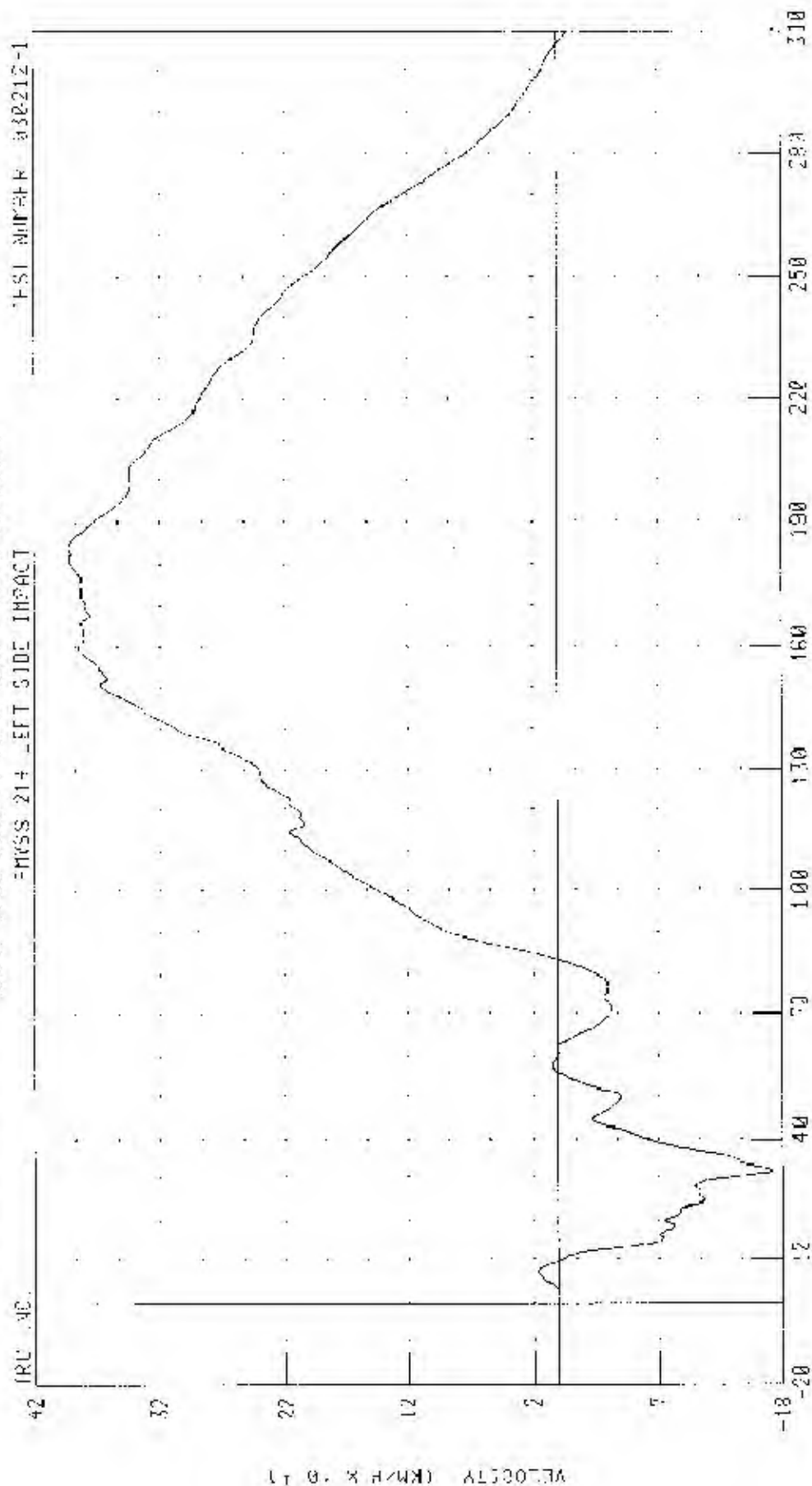
PEAK DATA: 4 31 0 0 37.84 10, -4.35 0 0 13.24 10

13/24 MPH 90 DEGREE SIDE IMPACT MOVING JERICO43.5 BARRIER INTO LEFT SIDE OF 2004 MAZDA PRO EXE 5

FIG 11 SIDE SILL AT REAR SEAT 7-AXIS VELOCITY

TEST NUMBER 30212-1

IMPACT 214 LEFT SIDE IMPACT



TIME (MS)

PEAK VALUE: 39.52 MPH @ 103.02 MS, -1.72 MPH @ 11.76 MS

CHANNEL 3R32V1 FILTER 6K CLASS 130

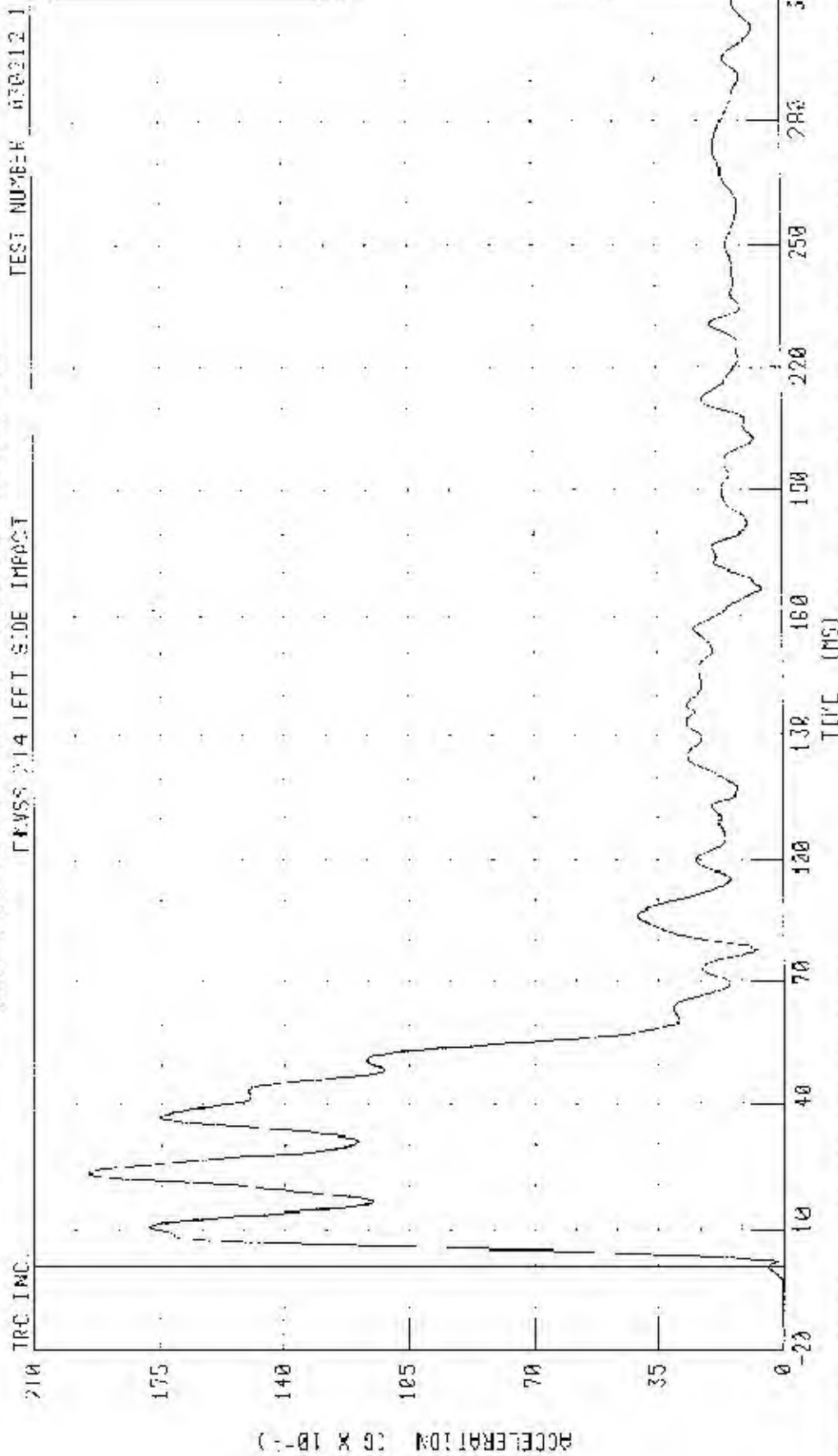
VELOCITY (MPH X 0.1)

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 *4ZDA REVUEVE 5

RIGHT SIDE STILL AT REAR SEPT RESULTANT ACCELERATION

TEST NUMBER 030212-1

TRC INC.



CHANNEL: RRRC01 FILTER: CH CLASS: 60

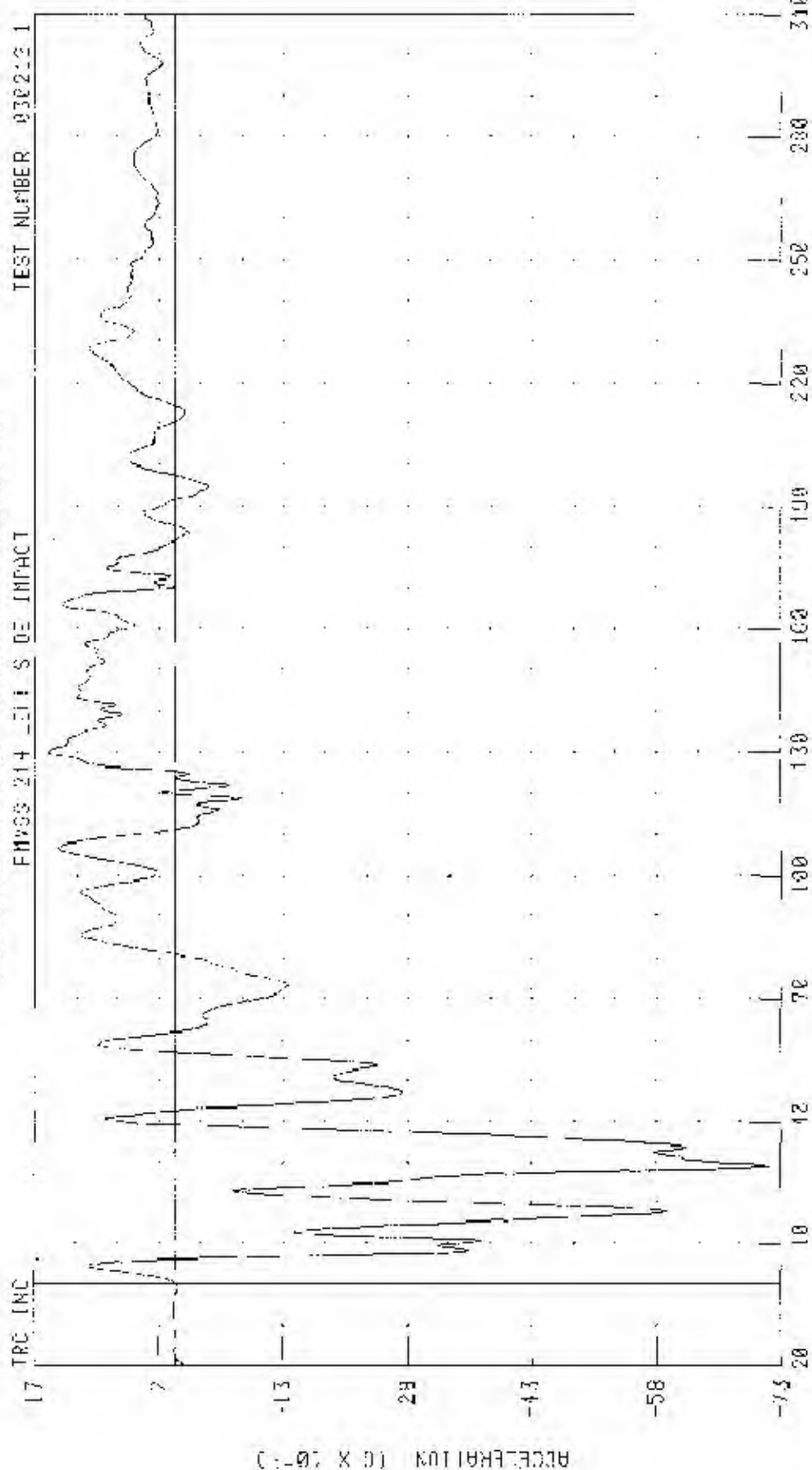
PEAK DATA: 10.533 MS, 0.011 G, -17.20 MS

40/24 KPH 90 DEGREE SIDE IMPACT CRUISING DEFORMABLE BARRIER, N O LEFT SIDE OF 1300 HAZARD PROFILE 5

REFR FLUOROPAN ABOVE WALE X AXIS ACCELERATION

TEST NUMBER 030212-1

FWSS 214 LEFT SIDE IMPACT



TIME (MS)

CHANNEL REKXG1 FOLDER C1 CLASS 50

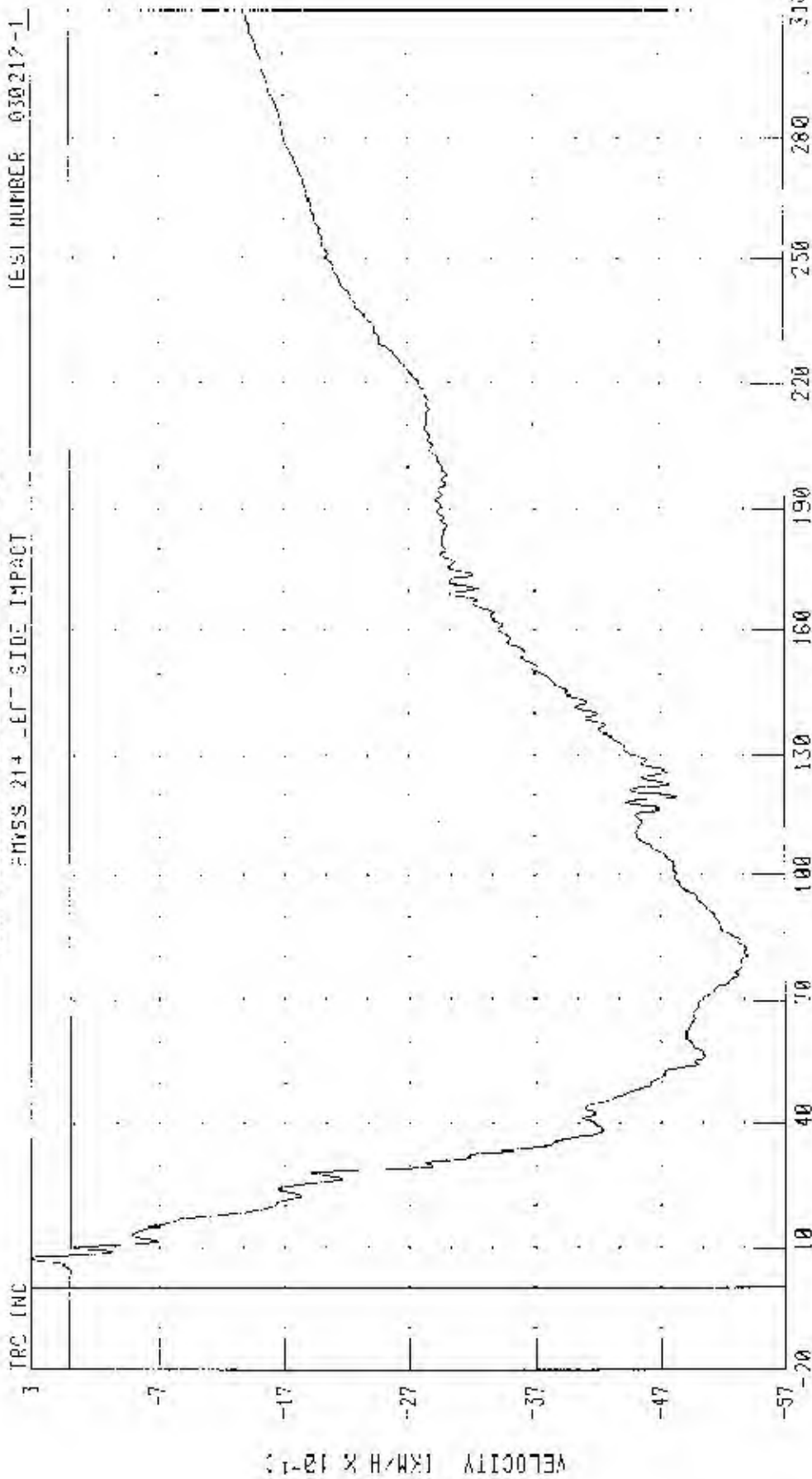
FLAK 0414 1 55 00 130 16 MS, -7 15 00 28 20 MS

43/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

PERF FLOORPAN 4000C AXLE X-CROSS VELOCITY

TEST NUMBER 030212-1

PMSS 214 LEFT SIDE IMPACT

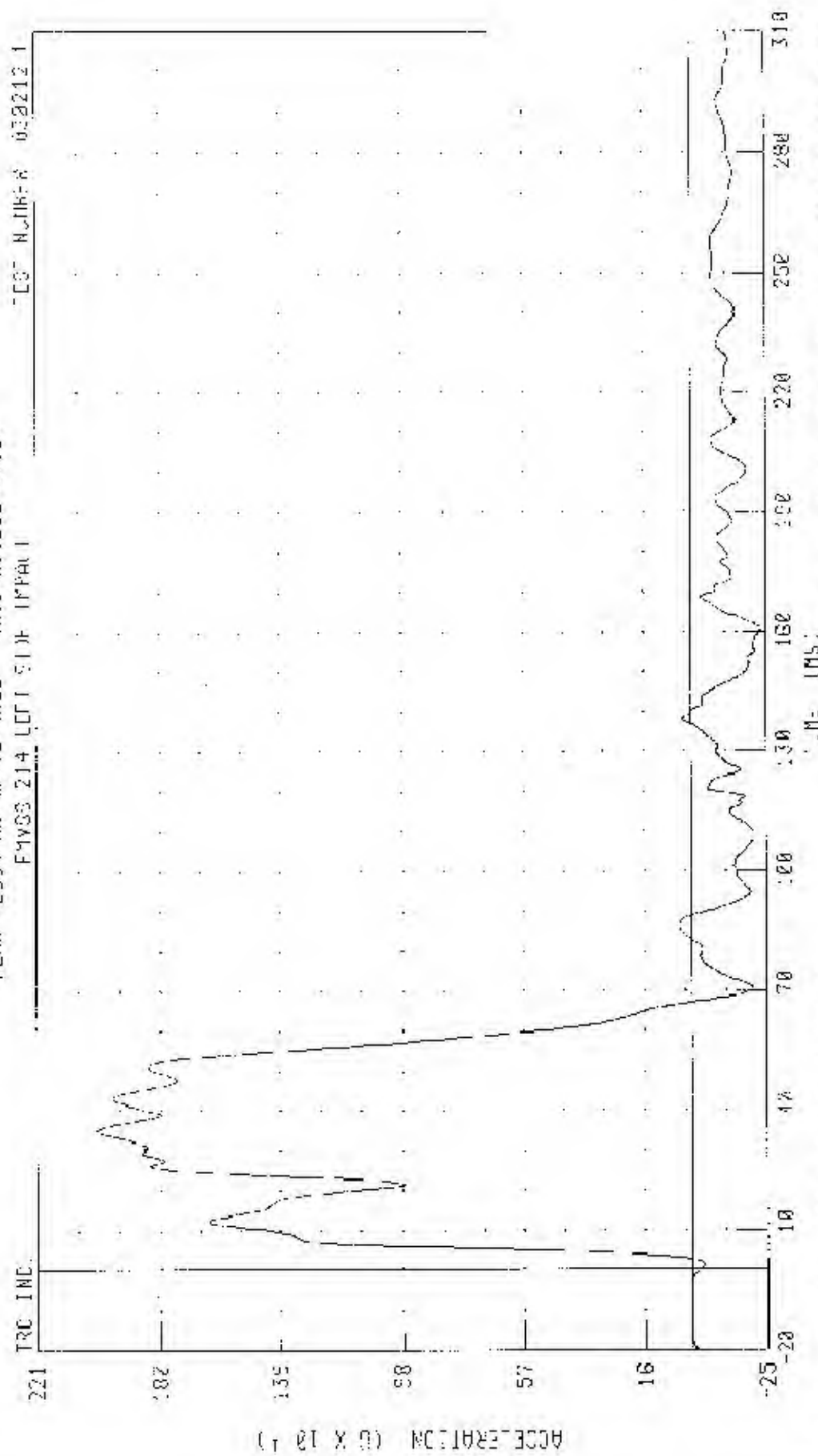


CHANNEL: HDKXV2 FILTER: CH. CLASS 180

PEAK LA 9: 0.52 KPH @ 6.95 MS; -5.41 KPH @ 84.24 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) (NIT) TEST SITE OF 2003 HAZUD PROTECT 5

REAR FLOORPDM ABOVE AXLE X AXIS ACCELERATION

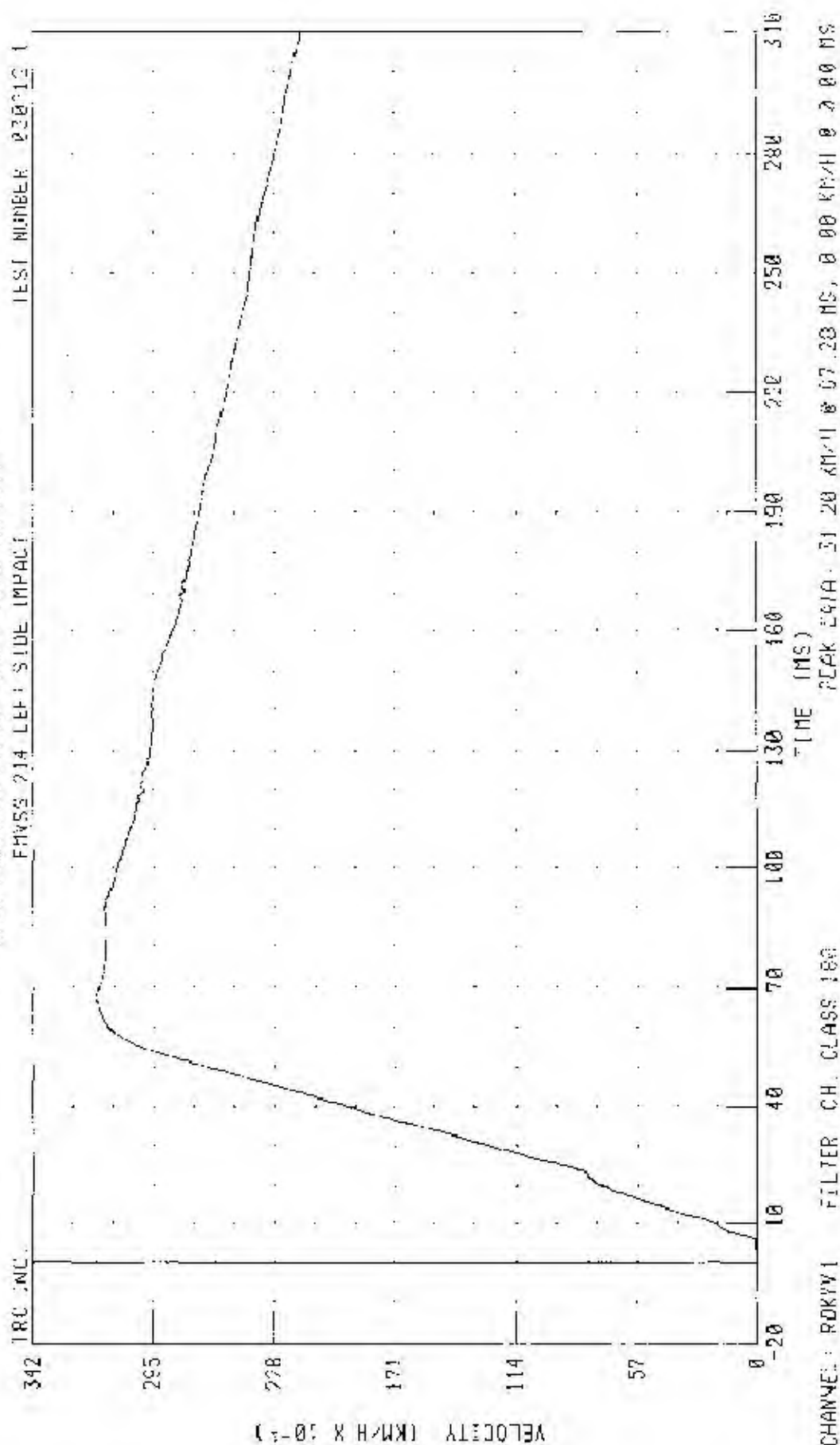


PEAK DATA 20 11 0 5 31.96 MS, 2.32 0.0 130 72 15

CHANNEL RDKYC1 FILTER CH, CLASS 50

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MIZON PROTEGE S

RFR FLOORPAN ABOVE XLE Y-AXIS VELOCITY

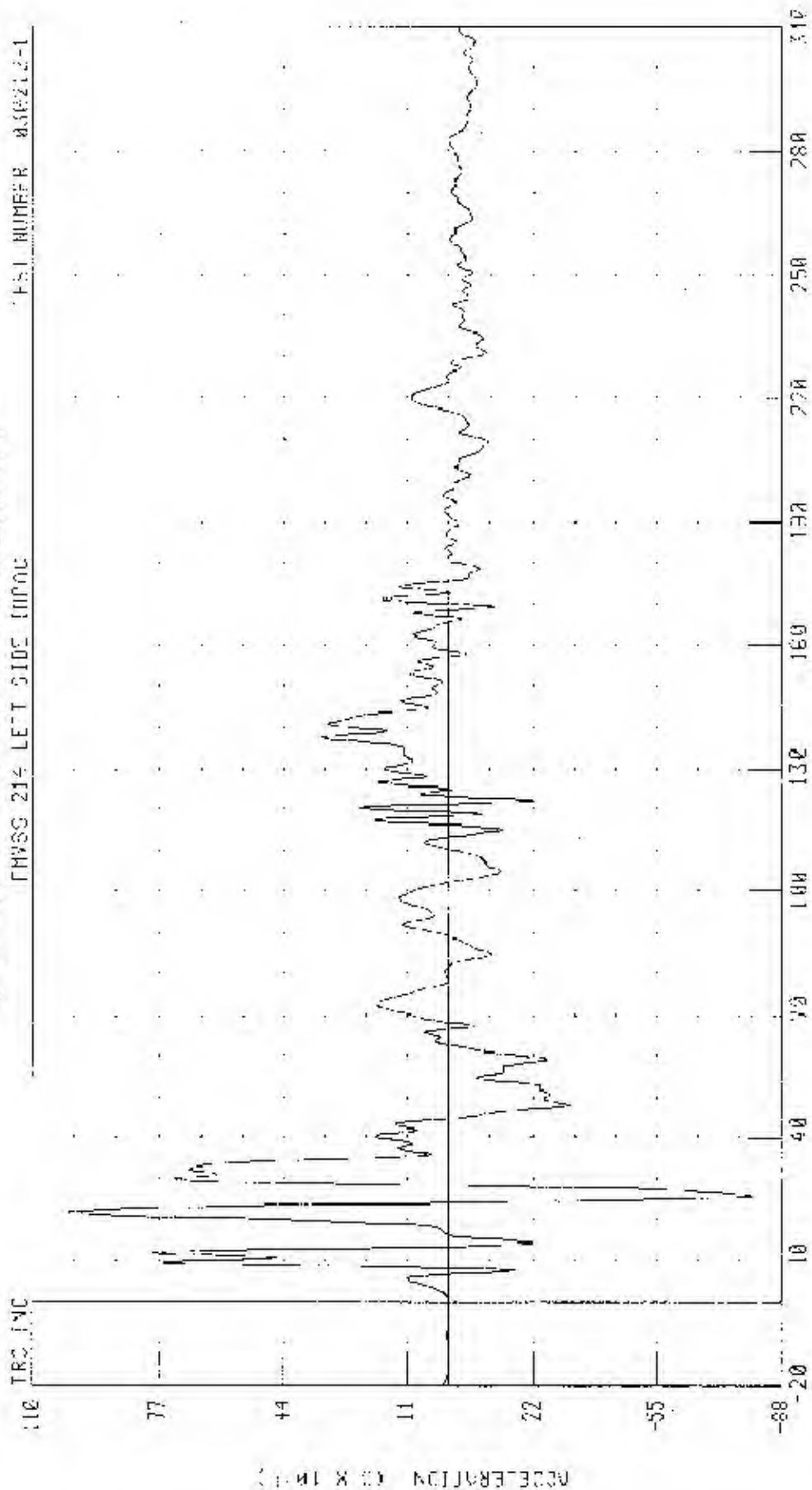


40/24 KPI 02 DEGREE SIDE IMPACT INVOLVING DEFORMABLE BARRIER IN THE SIDE OF 2020 EX200 PROTECTOR

REMARK - JOURNAL ABOVE XLS 7-EX'S ACCELERATION

TEST NUMBER 030212-1

CHVSC 214 LEFT SIDE IMPACT



CHANNEL RD201 FILE 01 CH CLASS 00

FILE 01 CH CLASS 00

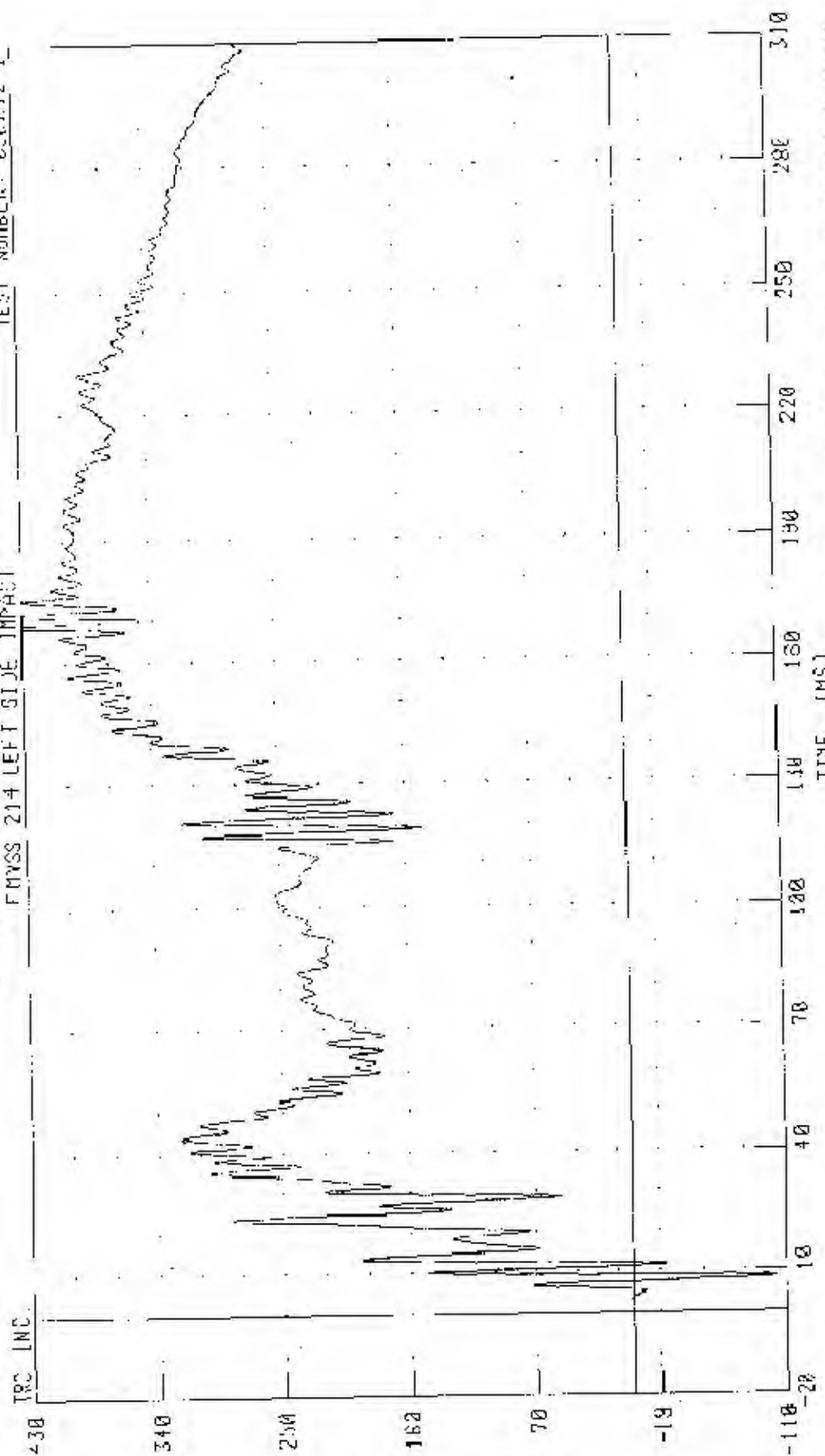
030212-1

B-61

48/24 KPH 90 DEGREE SIDE IMPACT INVOLVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2003 HAZARD PROTECT 5

REAR FLUID PUMP ABOVE AXLE Z-AXIS VELOCITY

TEST NUMBER: 030212-1



VELOCITY X 1/4000 AL13013A

PEAK DATA: 4.46 KPH @ 172.16 MS; -1.22 KPH @ 0.40 MS

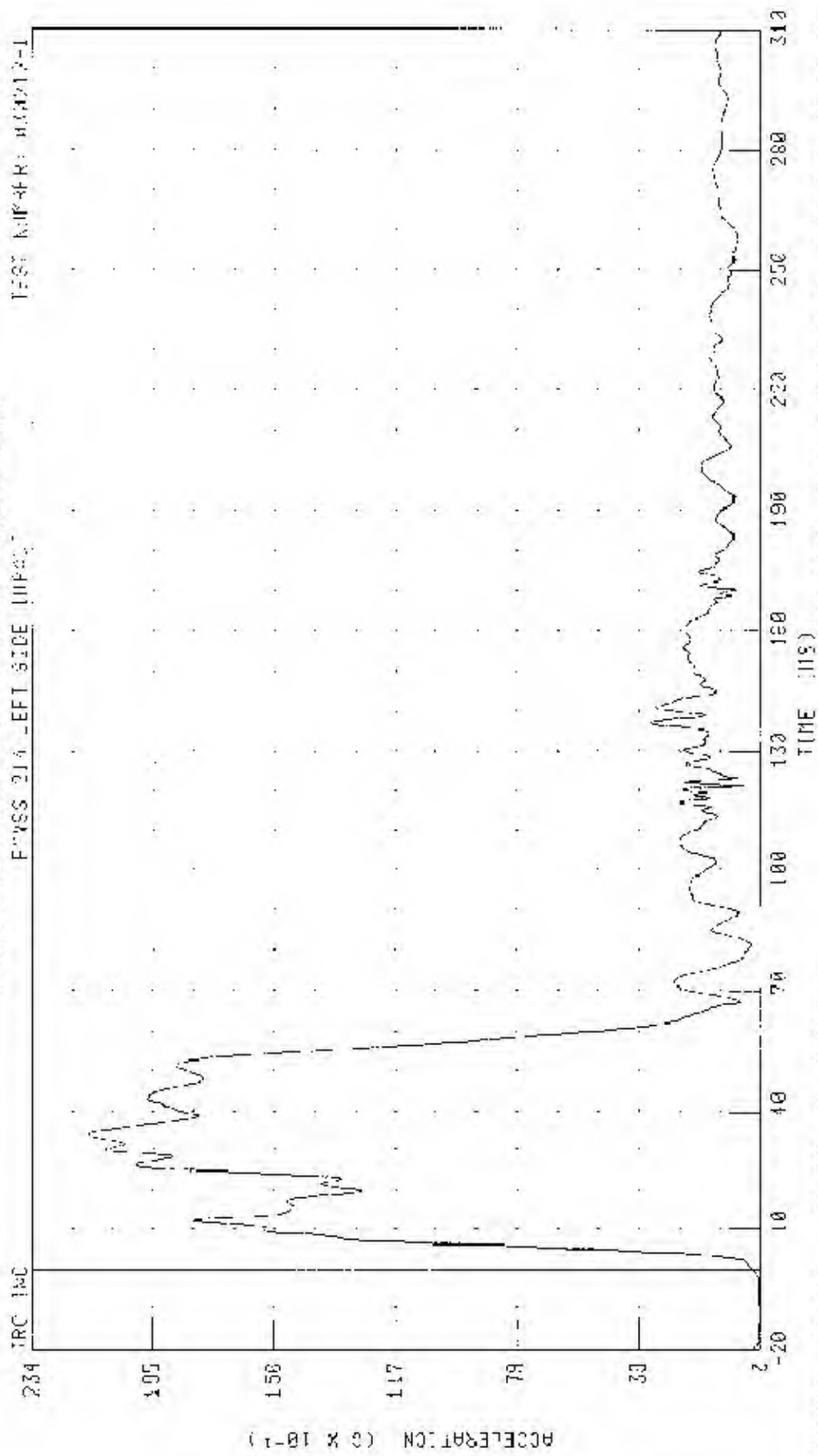
CHANNEL FDKZV1 FILTER CH. CLASS 180

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 PACEA PROJECT 5

REAR F BUMPON DRIVE AXI - RESULANT ACCELERATION

TEST NUMBER: H00012-1

EVSS 214 LEFT SIDE IMPACT



CHANNEL: RD4RG1 FILTER: CH1 CLASS 20

PEAK DATA: 21.59 G @ 33.02 MS, 0.01 G @ -100.00 MS

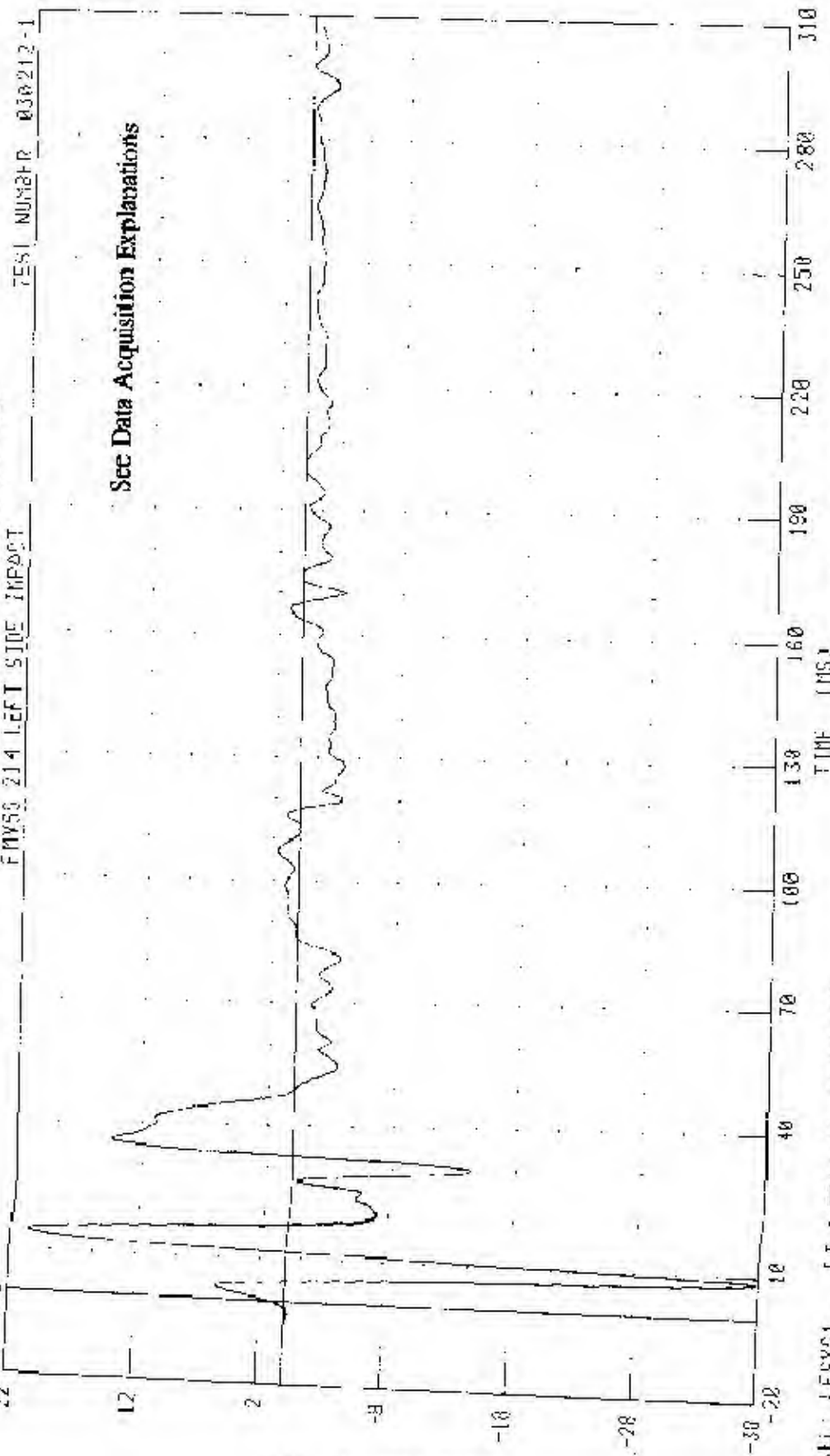
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2803 MA700 PROTECT S
LEFT SIDE SILE AT PRCMI SENT Y-PXIS ACCELERATION

FMV50 214 LEFT SIDE IMPACT

TEST NUMBER 030212-1

22 TRC INC

See Data Acquisition Explanations

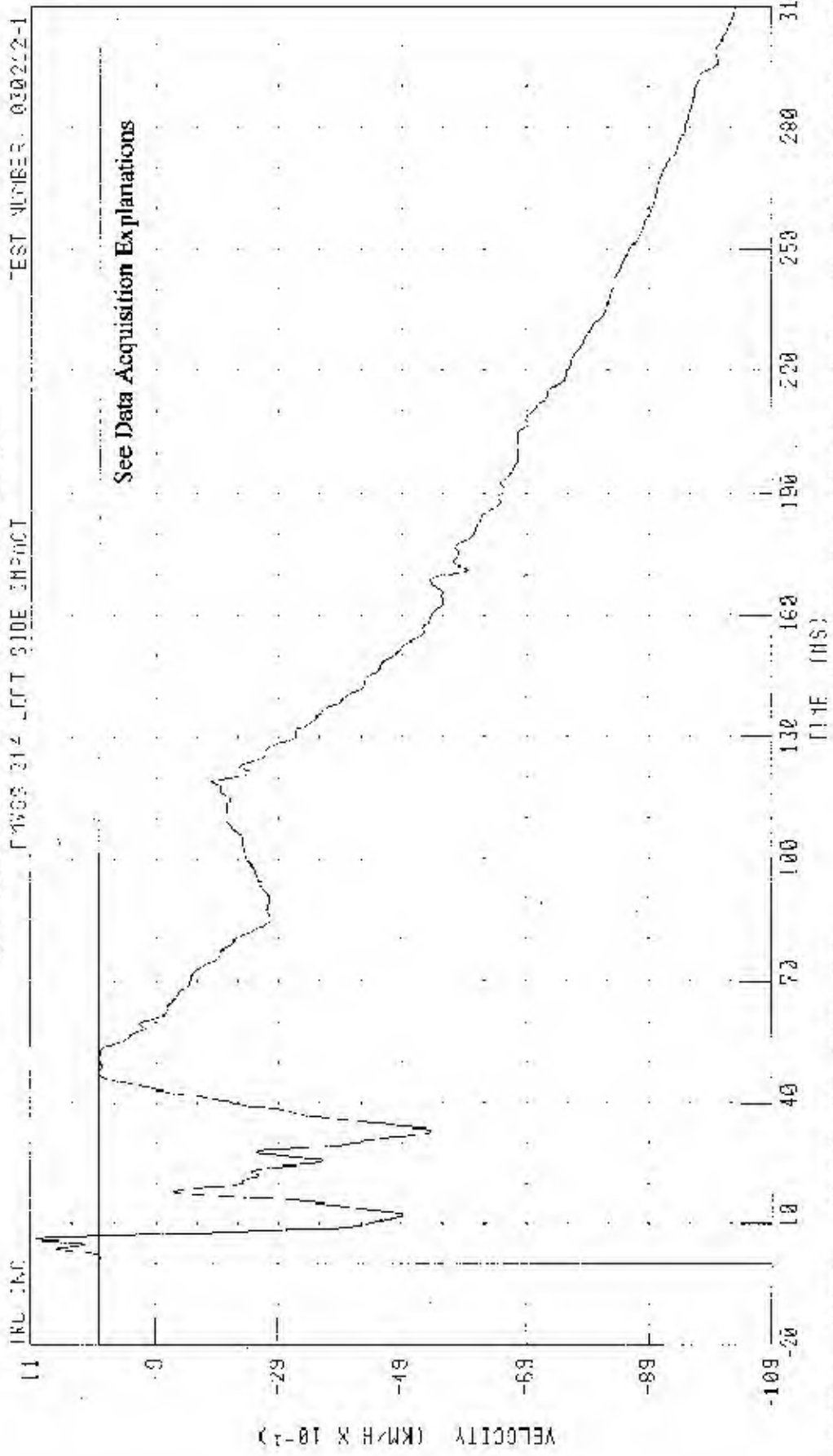


CHANNEL: LFSYG1 FILTER: 20.000 G @ 15.36 MS, -37.85 G @ 3.18 MS

ACCELERATION (G)

TIME (MS)

40/24 KPH 90 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2003 MAZDA PROFIOT 5
 LEFT SIDE SILL AT FRONT SEAT Y AXIS VELOCITY



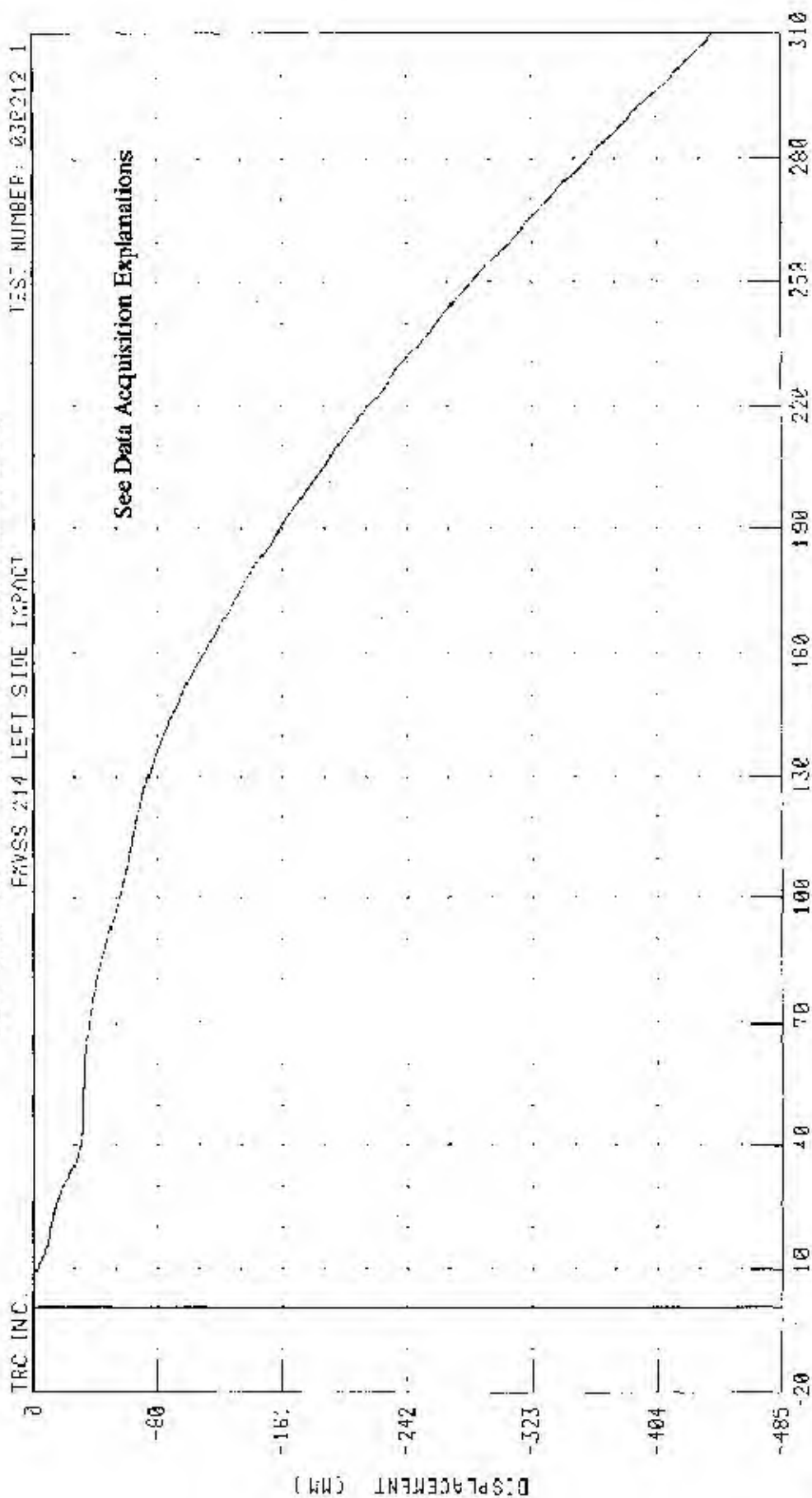
CHANNEL: J5YV1 FILTER: C4 CLASS: 100 FILE (MS): 01 KPH 90 5.50 MS, 10 32 KPH 10 310 02 MS

40/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

LEFT SIDE SILL AT FRONT SEAT X-AXIS DISPLACEMENT

TEST NUMBER: 030212 1

FRWSS 214 LEFT SIDE IMPACT



TIME (MS)

PEAK DATA 0 66 MM @ 7 30 MS, 442 40 MY @ 310 00 MS

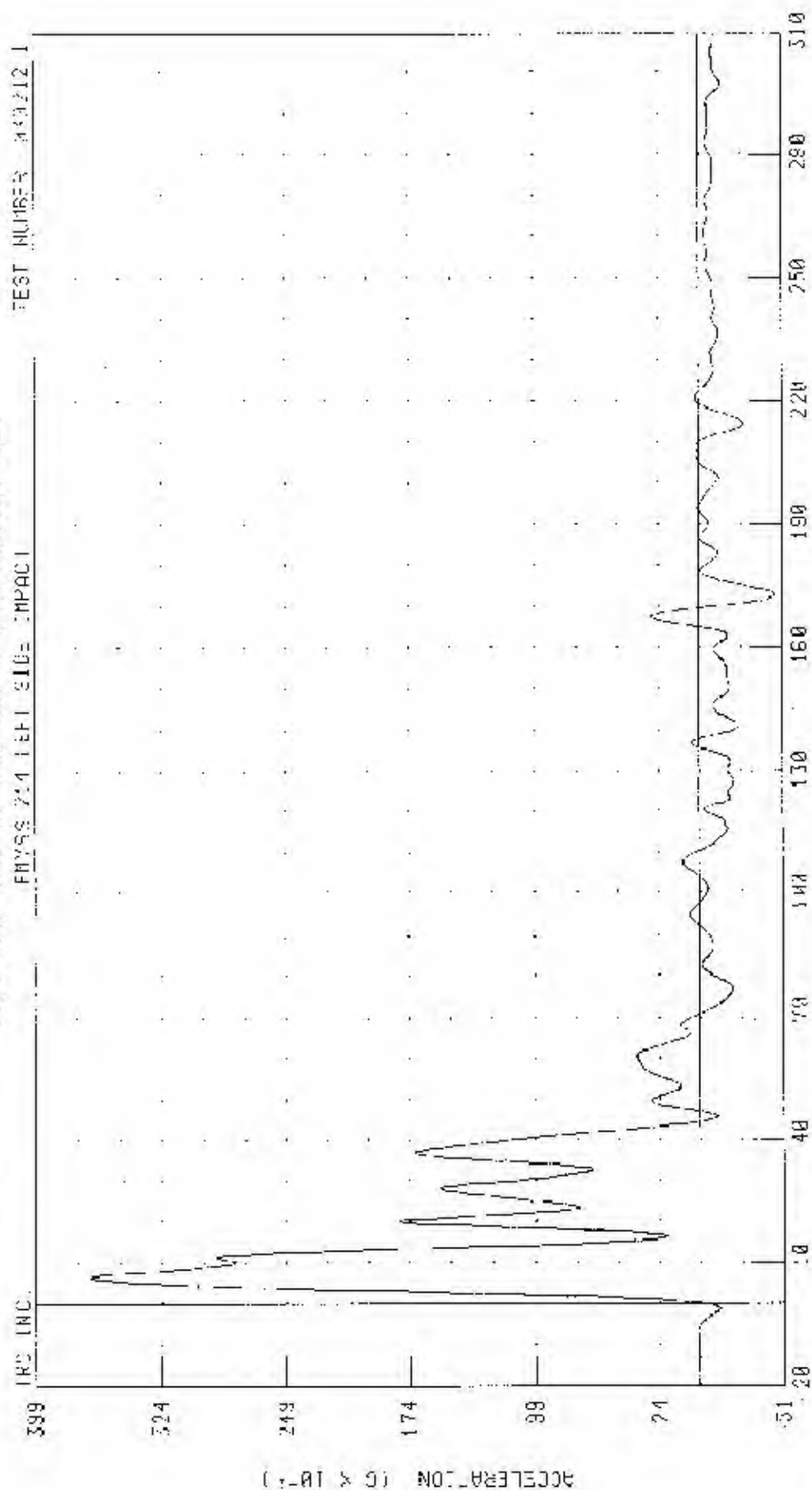
CHANNEL: LFSVD1 FILIER: CH. CLASE 180

48/24 KTH 00 DEGREE SIDE IMPACT (MOVING DETONABLE CARTER) INTO LEFT SIDE OF 2003 MAZDA PROTECT R

LEFT SIDE SILL AT REAR SEAT Y-AXIS ACCELERATION

TEST NUMBER 343212-1

PHYS 214 LEFT SIDE IMPACT



TIME (MS)

CHANNEL: JRCYG1 FILTER: CH. CLASS: B0

PEAK DATA 35.70 0 0 6.32 MS; -4.45 0 0 172.54 MS

43/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 IMPACT PROTEGE 5

LEFT SIDE COLL OF REAR SEAT V-AXIS VELOCITY

TEST NUMB-N 230222-1

RC INC

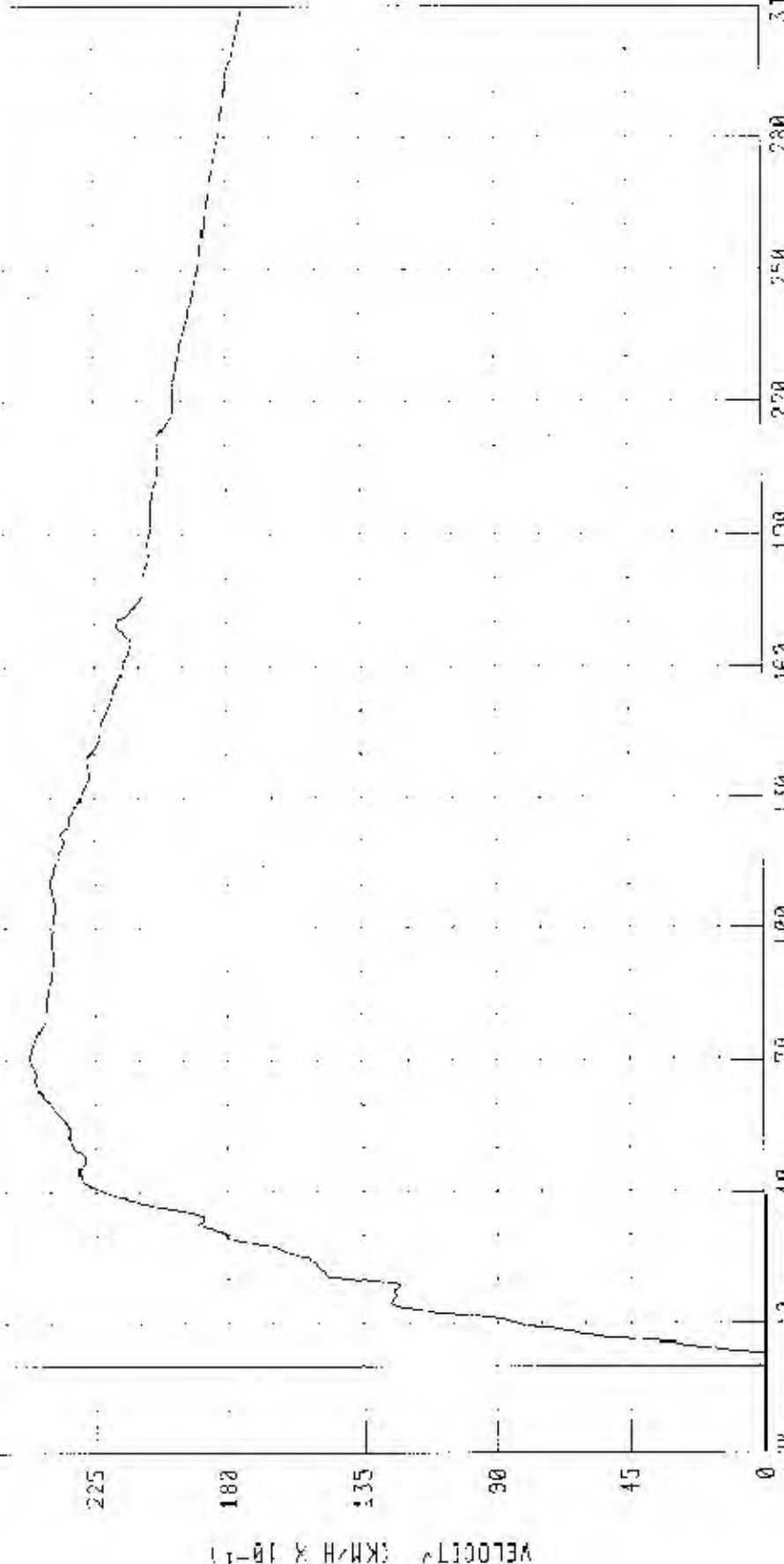
TEST NUMB-N 230222-1

TEST NUMB-N 230222-1

TEST NUMB-N 230222-1

TEST NUMB-N 230222-1

TEST NUMB-N 230222-1



VELOCITY (KPH X 10-1)

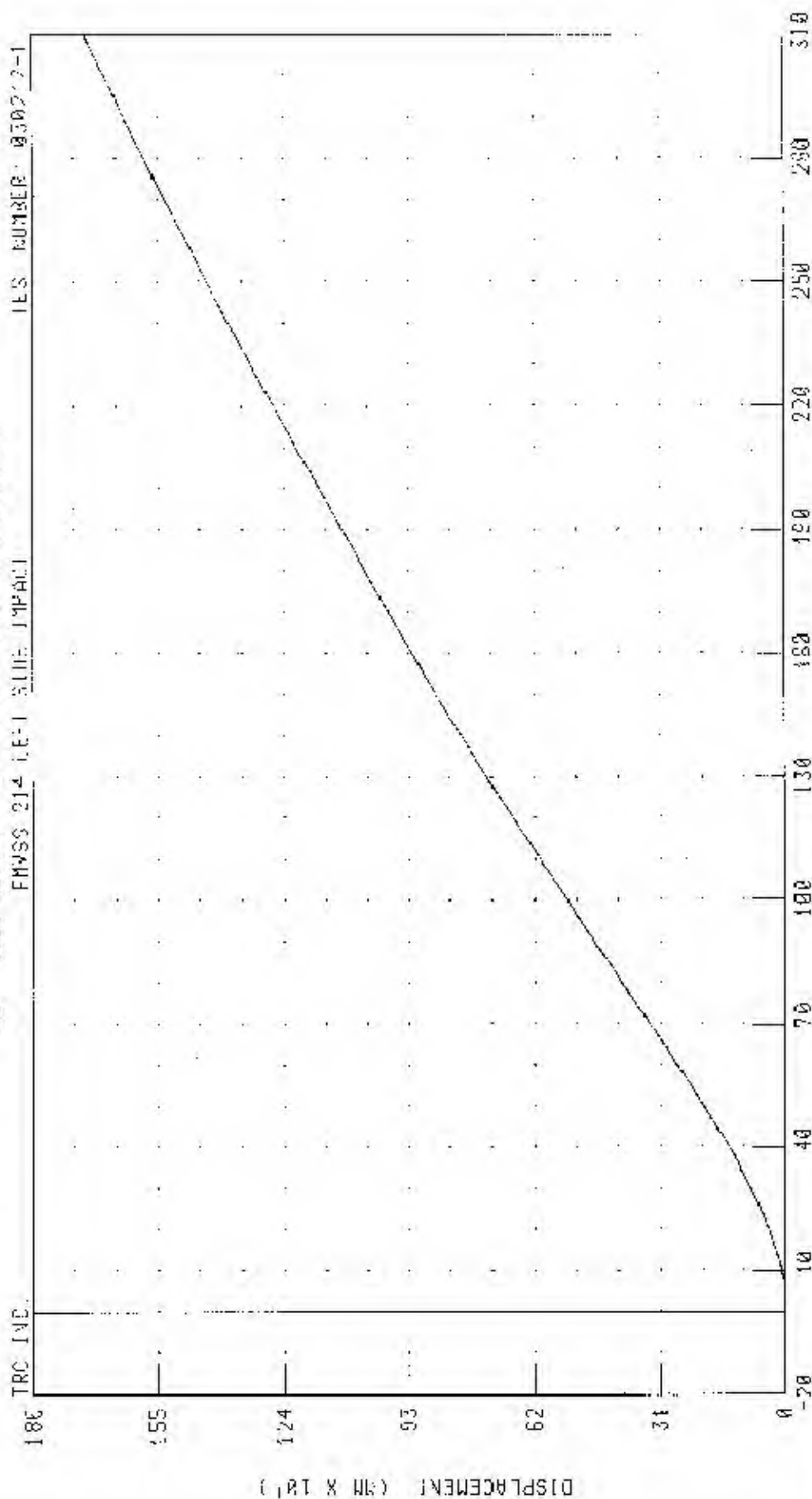
TIME (MS)

PEAK DATA 21 53 KPH 9 70 64 75 10 00 KPH 11 6 2 32 18

CHANNEL CRSYWL FILTER: CH CLASS 120

48/24 KPI 90 DEGREE SLIP IMPACT (MOVING IMPERFECTIBLE BARRIER) INTO LEFT SIDE OF ROAD RAILROAD

LEFT SIDE STILL IN REAR SPAT Y-AXIS DISPLACEMENT



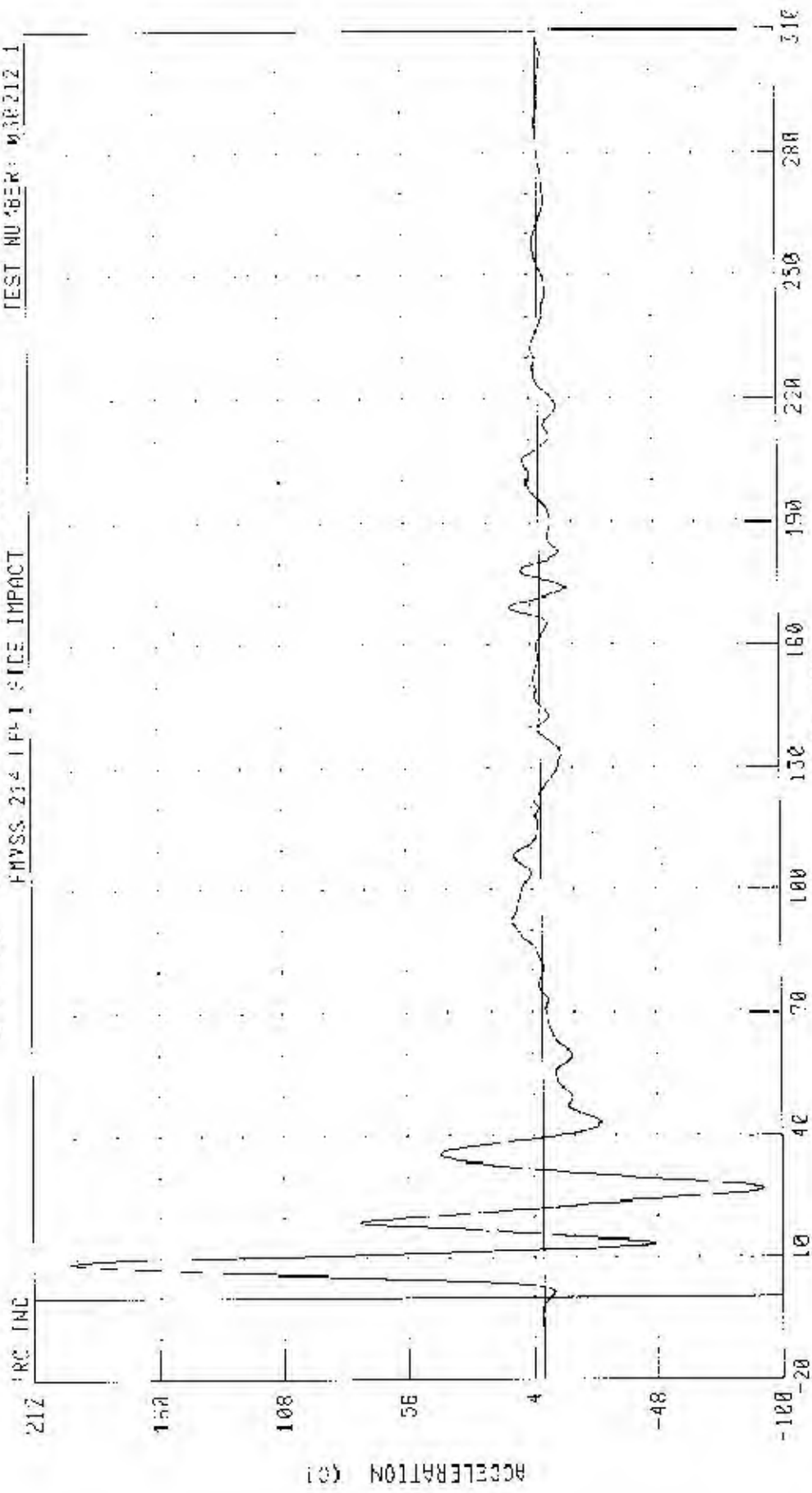
CHANNEL: LRSYD1 FILTER CH CLASS 180

PLAK DATA: 1730.00 MM 3 310 00 MS; -0.31 MM 2.72 HS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE
LEFT FRONT DOOR ON CENTERLINE Y-AXIS ACCELERATION

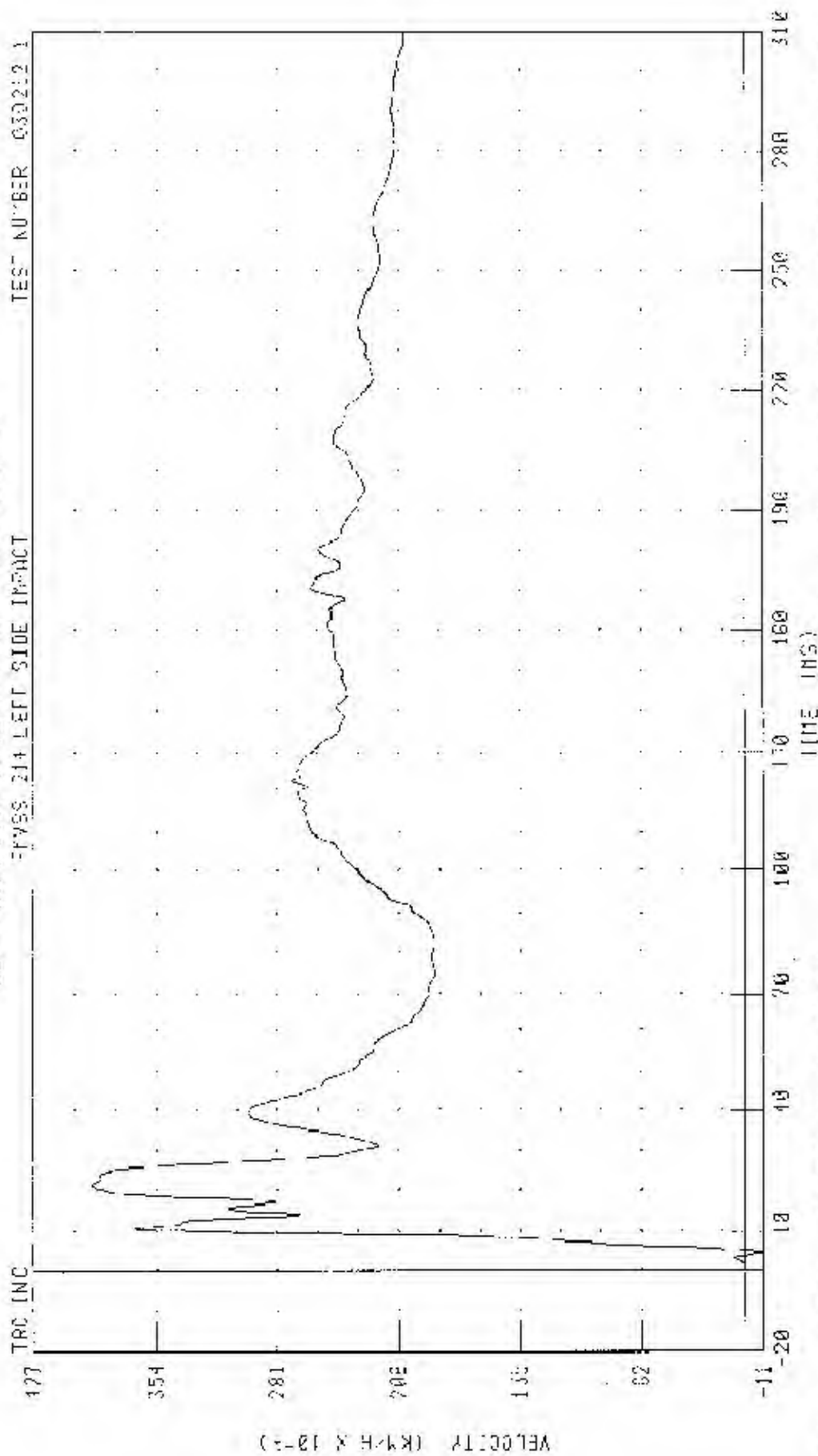
TEST NUMBER: 030212-1

PHYSS 214 LPH 1 SIDE IMPACT



CHANNEL: LFCY01 FILTER: CH. CLASS 50
PEAK DATA: 100.50 G @ 8.90 MS, -91.95 G @ 25.88 MS

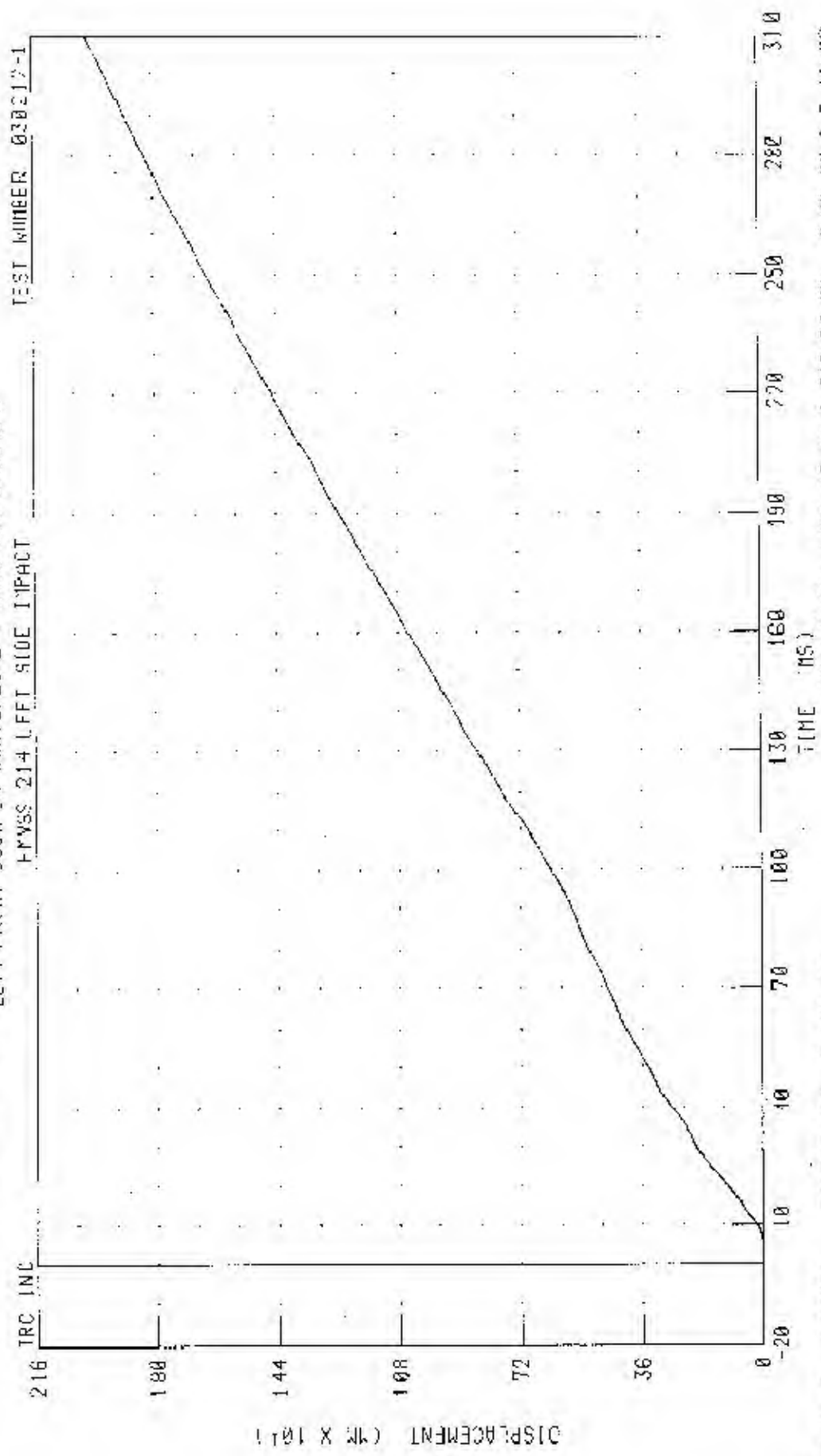
48/24 MPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 PACEA PROTEGE 5
LEFT FRONT DOOR ON CENTERLINE Y-AXIS VEHICLE



PLAK DATA: 30 12 404 0 21 12 MS, -1 07 KPH 0 + 50 MS

CHANNEL: L10V1 FILTER: CH CLASS 180

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2000 MATHIS PROTEGE 5
 LEFT FRONT DOOR ON CENTERLINE Y-AXIS DISPLACEMENT

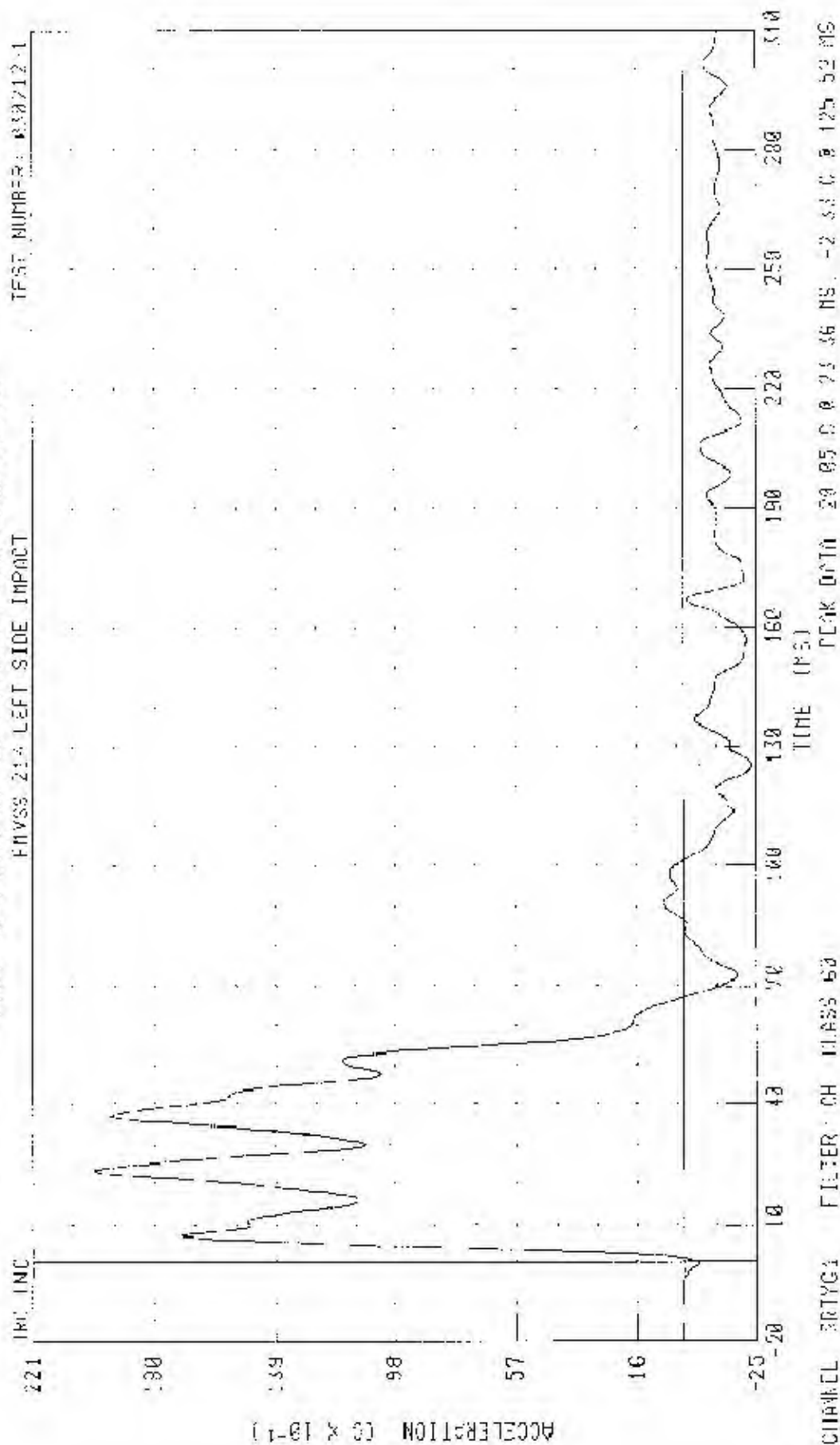


CHANNEL LFCYC1 FILTER: CH. CLASS 130

PEAK DATA: 1999.55 "IN @ 310.00 "MS; -0.00 "IN @ 3.5 12 "MS

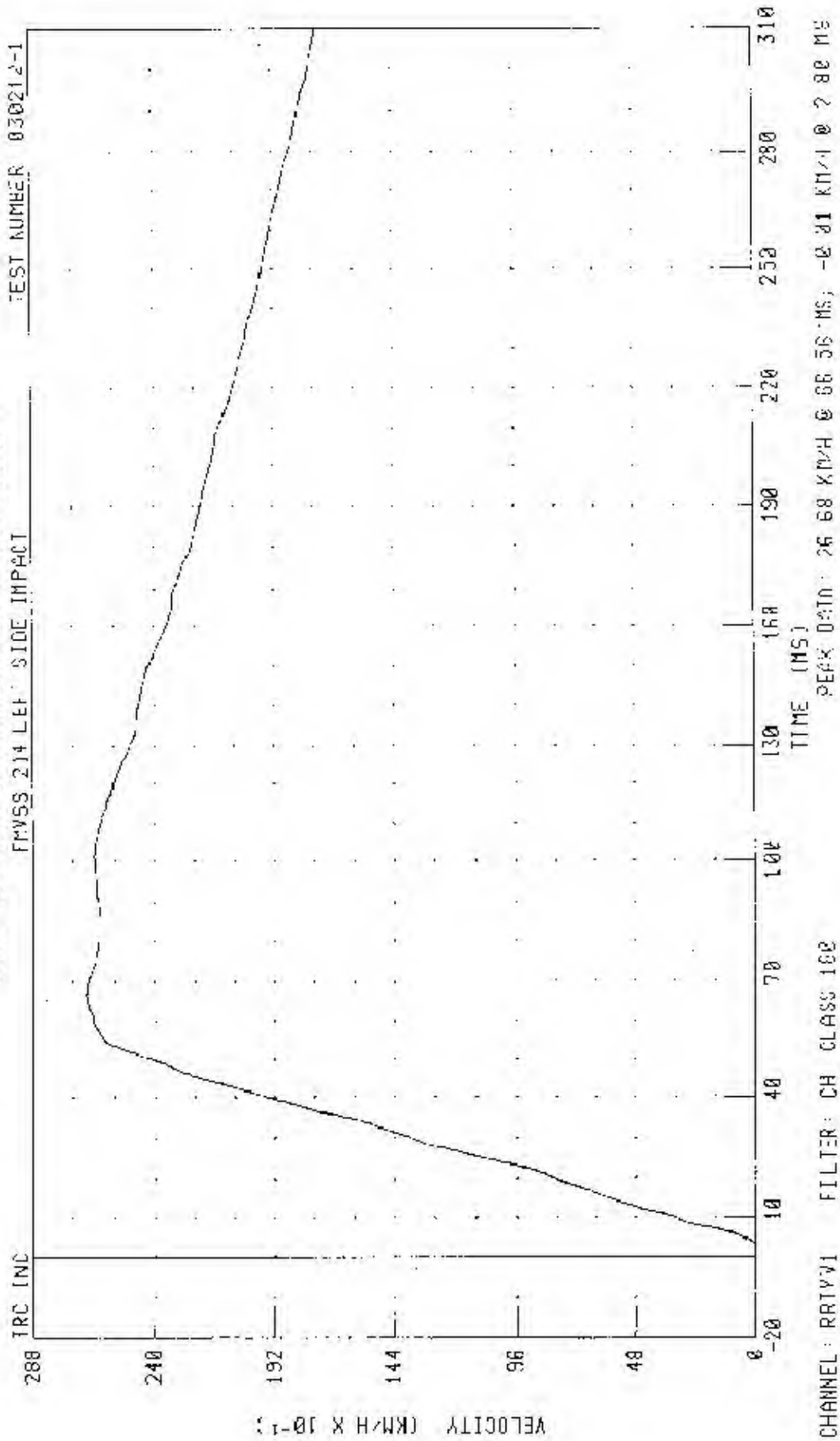
18/21 KPH 99 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

RIGHT REAR OCCUPANT COMPARTMENT Y-AXIS ACCELERATION



48/24 KPH 00 DEGREE SIDE IMPACT SHOWING DEFORMABLE BARRIER INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

RIGHT REAR OCCUPANT COMPARTMENT Y AXIS VELOCITY

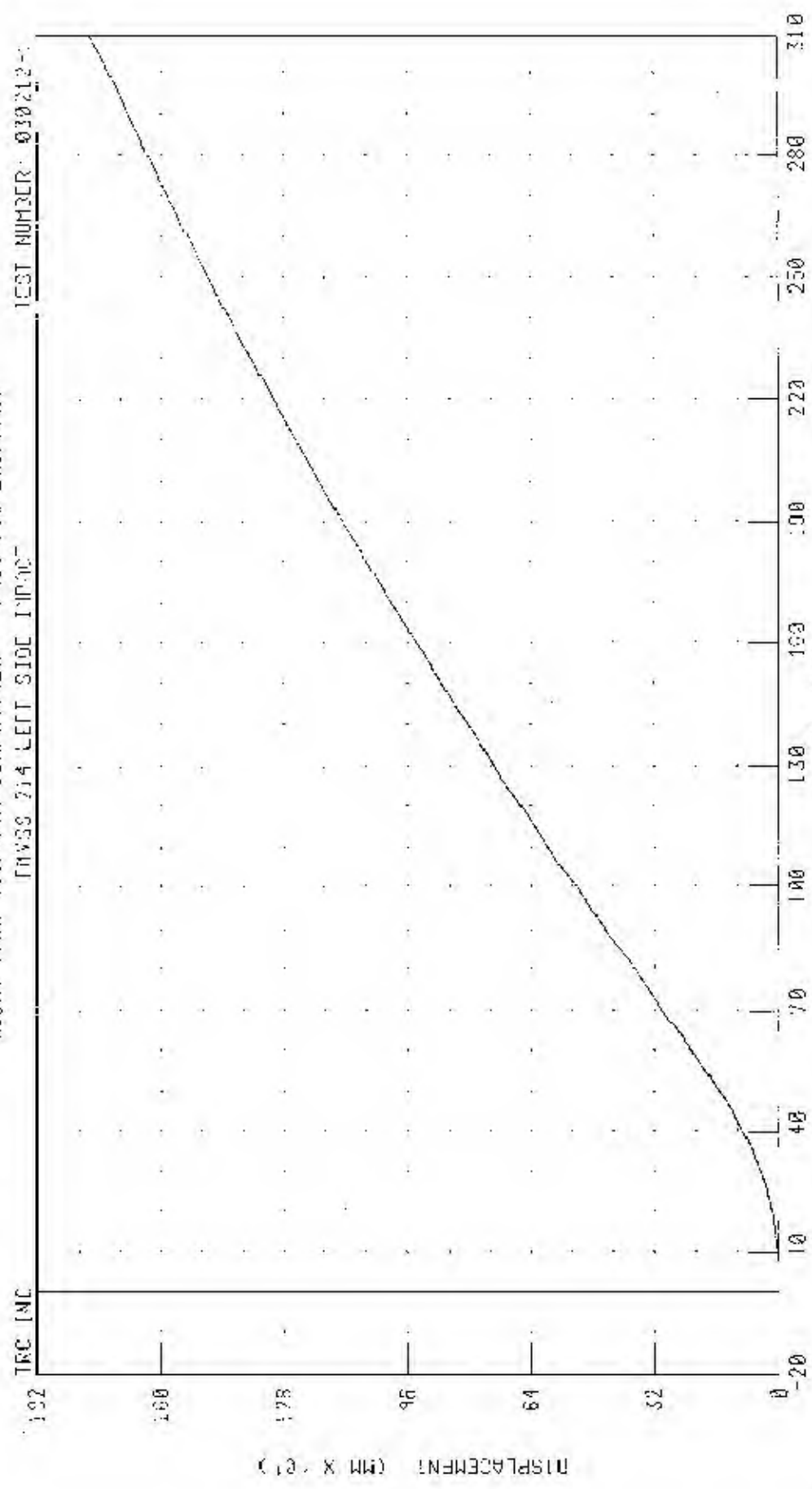


48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

RIGHT REAR OCCUPANT COMPARTMENT X-AXIS DISPLACEMENT

TEST NUMBER 030212-1

INVEST 214 LEFT SIDE IMPACT



TIME (MS)

PEAK DATA 1783.92 MM @ 310.20 MS; 0.00 H1 3 5 20 12

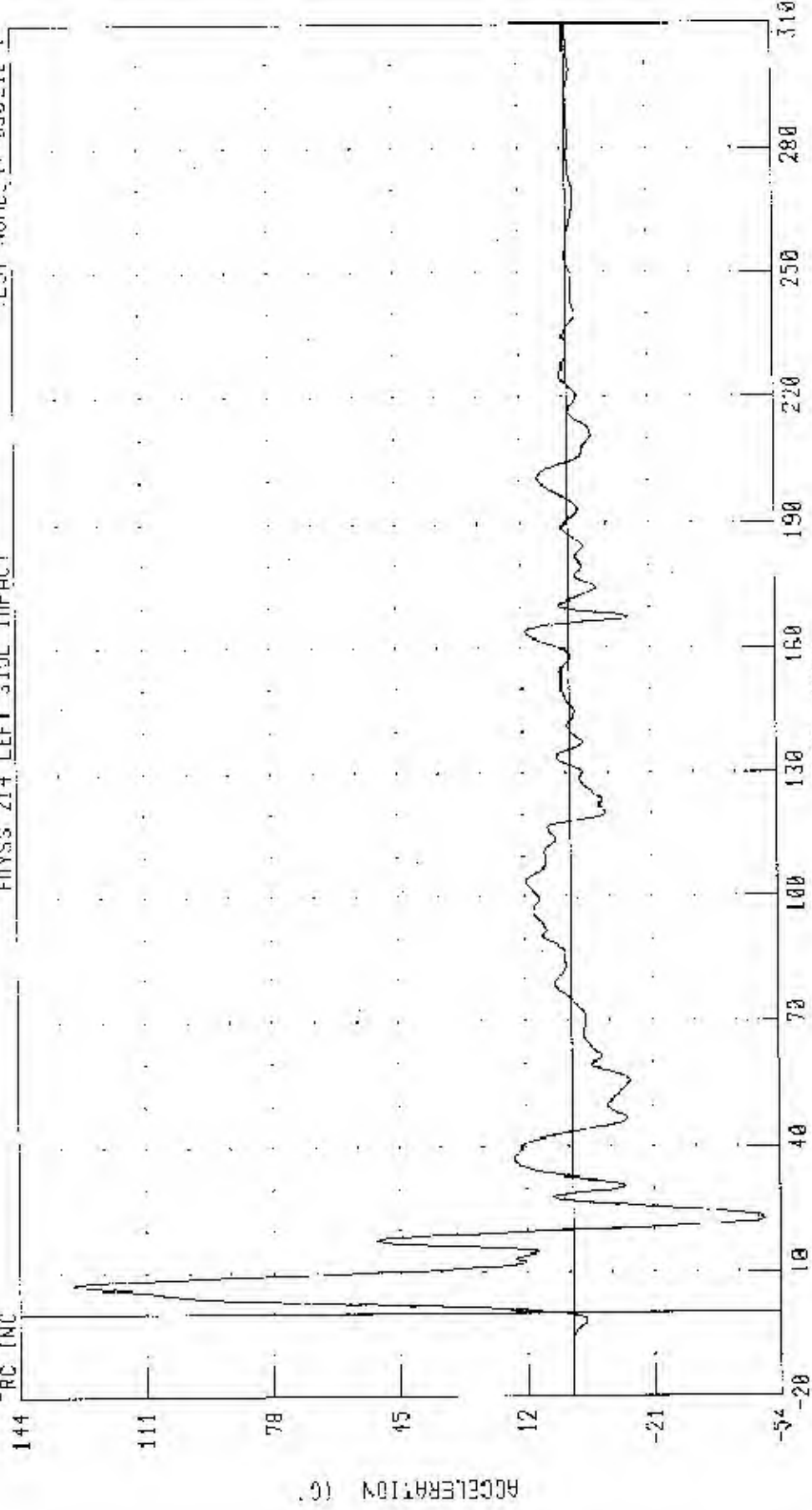
CHANNEL: HR70D1 FILTER: CH. CLASS 180

48/24 MPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 M4/DA PROTECTOR
 LEFT FRONT DOOR F10-REAR Y AXIS ACCELERATION

TEST NUMBER: 030212-1

PHYS: 214 LEFT SIDE IMPACT

RC INC



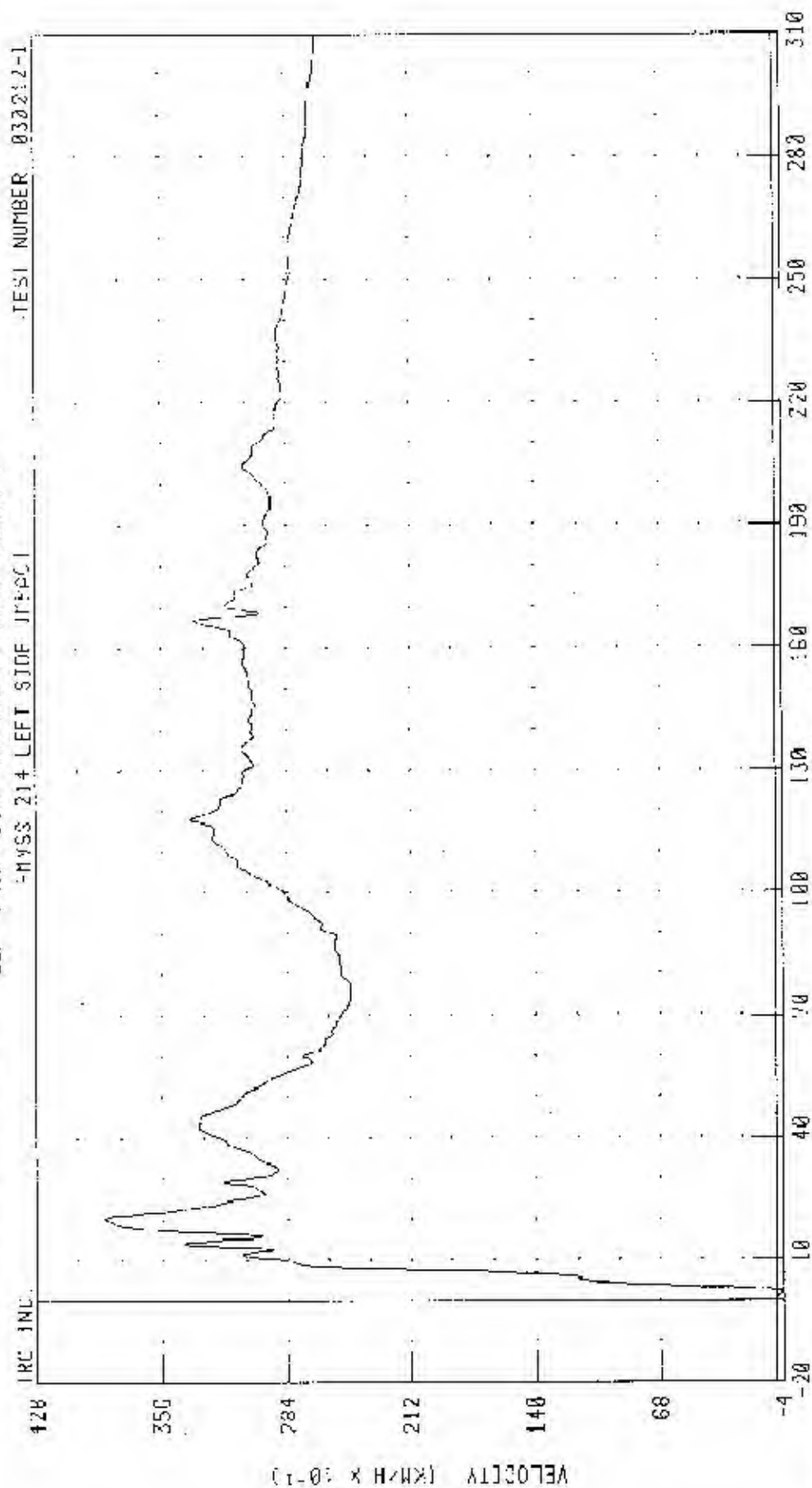
PEAK DATA 130.25 G @ 7.12 MS, -49.79 G @ 22.80 MS

CHANNEL: AFRYGL FILTER: CH. CLASS C0

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2000 MAZDA PROTEGE 5
 LEFT FRONT DOOR MID-REAR Y AXIS VELOCITY

TEST NUMBER 030212-1

HYSS 21+ LEFT SIDE IMPACT



TIME (MS)

PEAK DATA: 38.89 KM/H @ 20.48 MS; -0.45 KM/H @ 2.08 MS

CHANNEL: LHMV1 FILTER: CH. CLASS 100

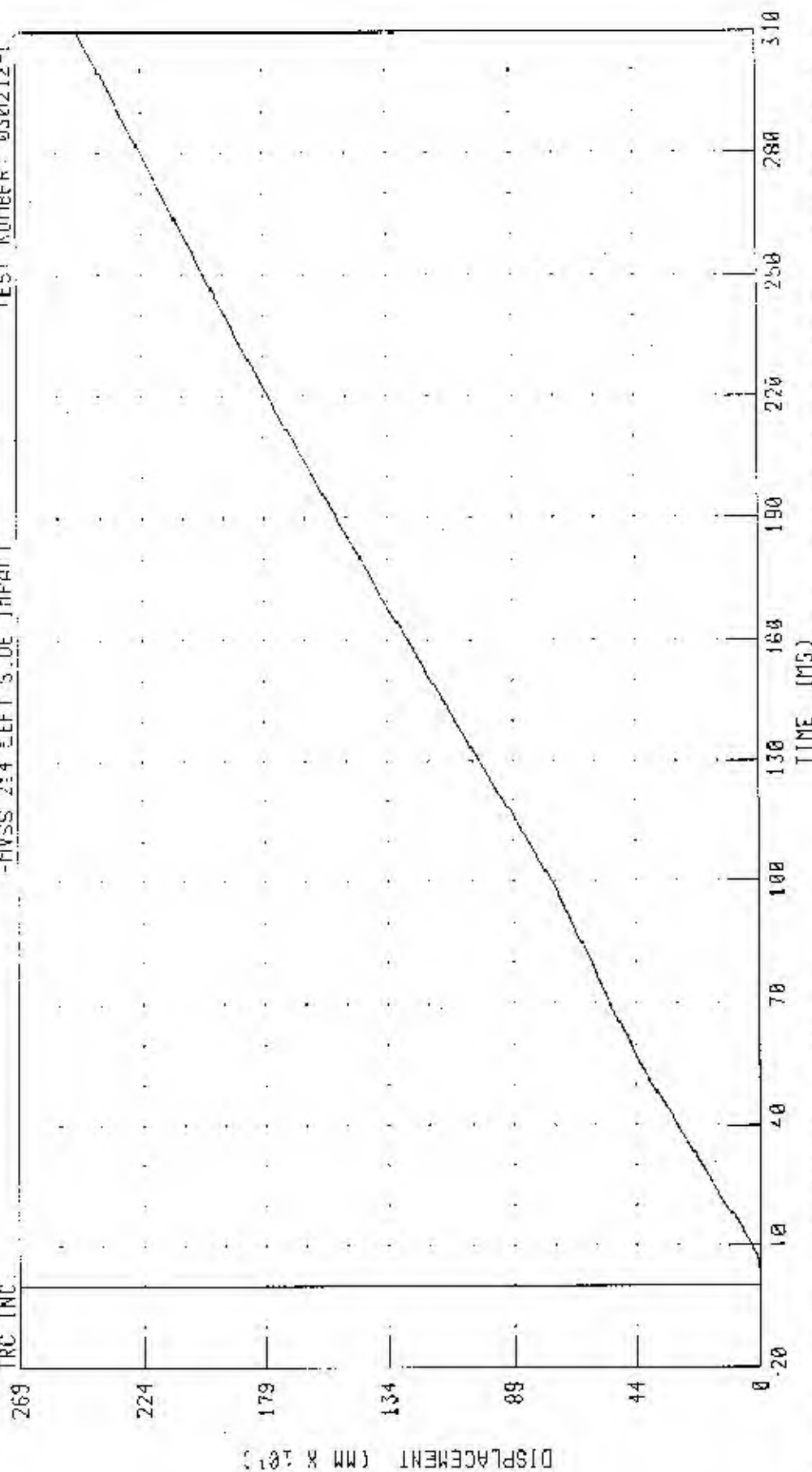
48/24 KPH 30 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

LEFT FRONT DOOR MID-REAR Y-AXIS DISPLACEMENT

TEST NUMBER: 030212-1

-MVSS 214 LEFT SIDE IMPACT

TRC INC.



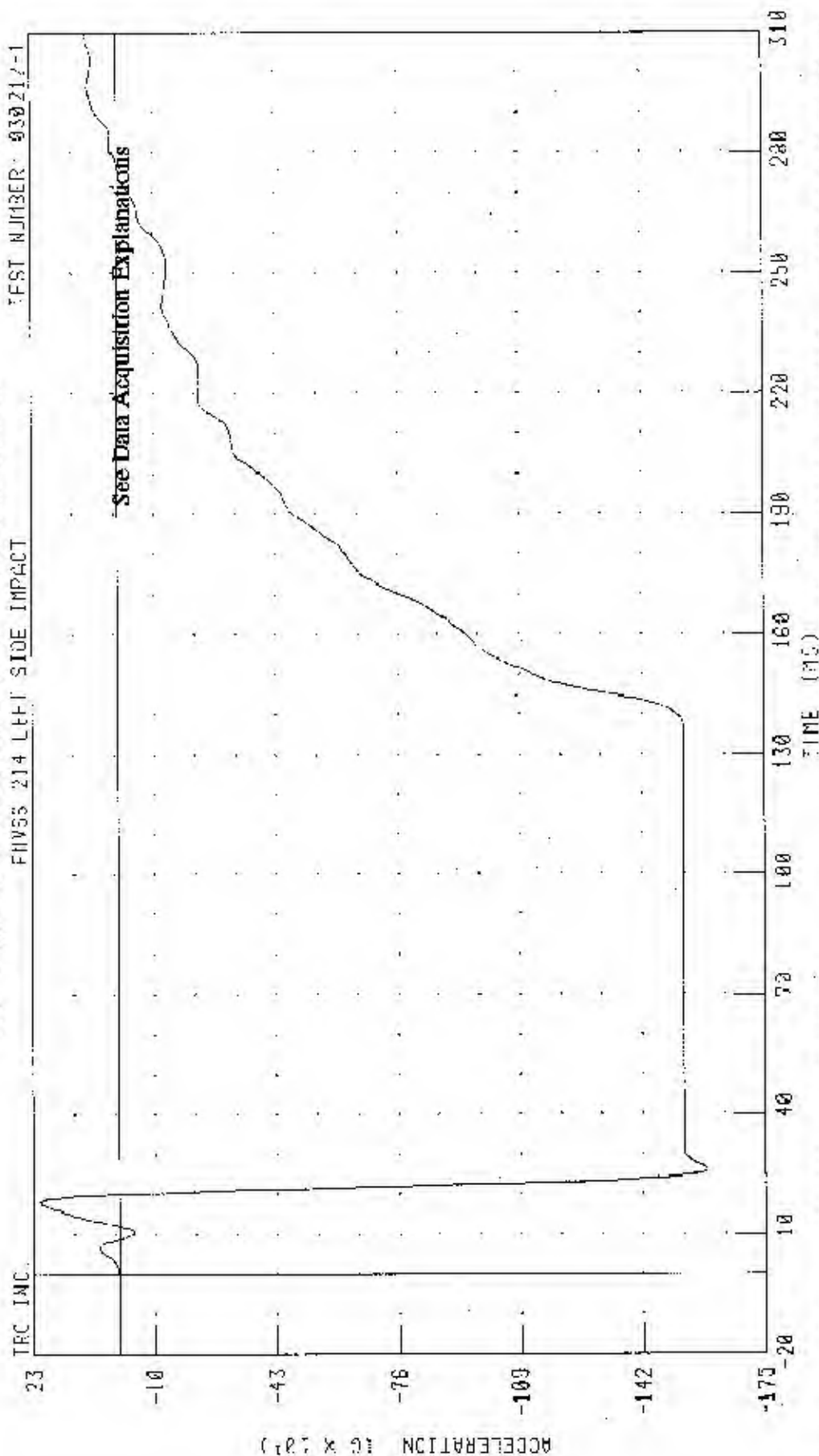
CHANNEL: LFMY01 FILTER: CH CLASS: 180

PEAK DATA: 2474.97 MM @ 310.00 MS, -2.11 MM @ 2.56 MS

18/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S
LEFT FRONT ODOOR UPPER CENTERLINE Y AXIS ACCELERATION

FHV53 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



CHANNEL LFUYC1 FILTER CH. CLASS 60

PEAK DATA 215.56 C 0 18.00 MS; -1588.67 G @ 20.00 MS

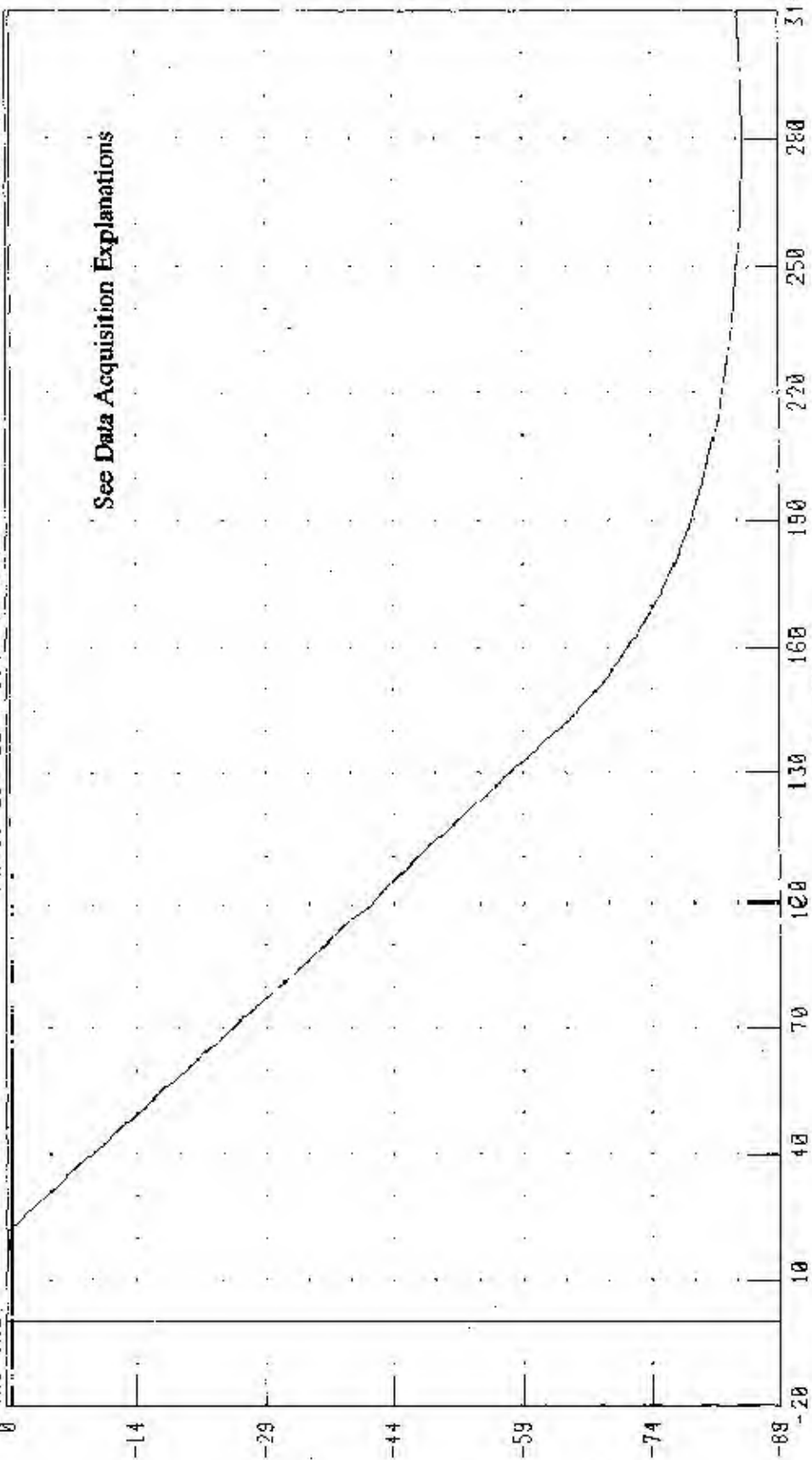
48/24 MPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARREL) INTO LEFT SIDE OF 2003 FORD PROTEGE 5

LEFT FRONT OCCUPANT UPPER CENTERLINE Y-AXIS VELOCITY

TRC INC. FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 03R212-5

See Data Acquisition Explanations

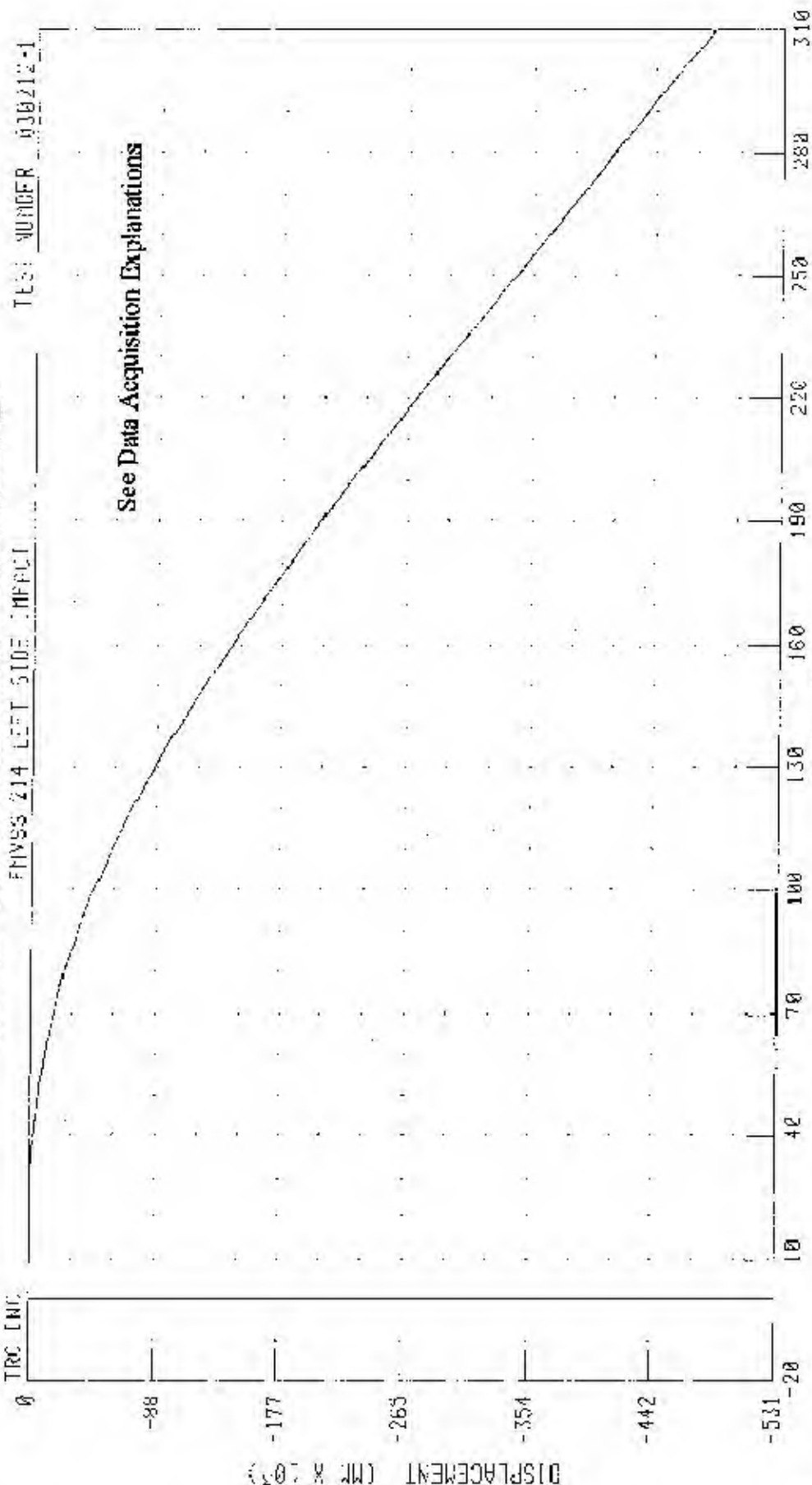
VELOCITY (KM/H X 10²)



CHANNEL LF00V1 FILTER: CH. CLASS 180 TIME (MS) PEAK DATA 47.08 KM/H @ 21.12 MS; -2528.00 (1/H @ 279.04 MS)

40/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE SURFACER) INTO LEFT SIDE OF 2002 FORD FOCUS S

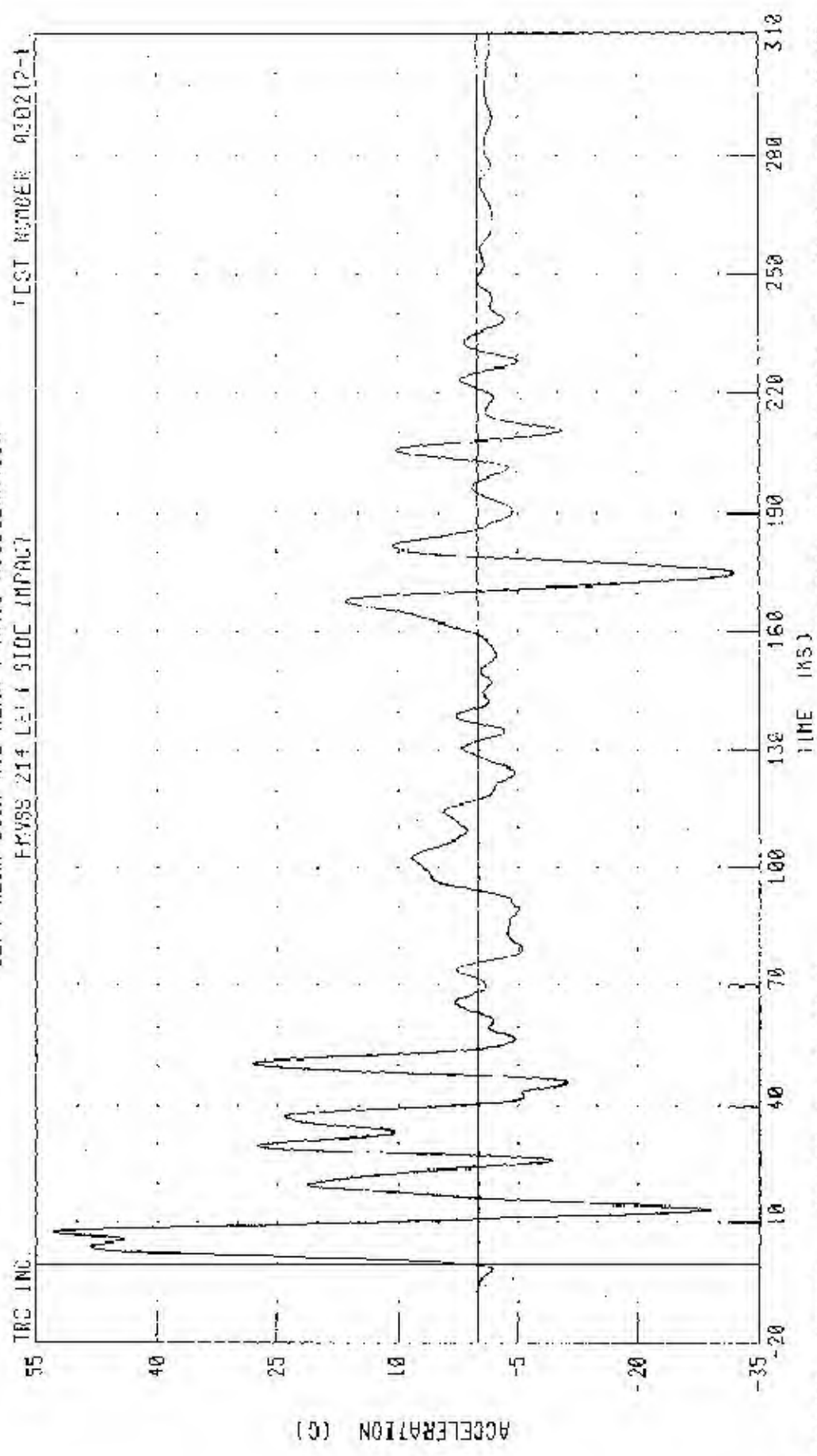
LEFT FRONT DOOR UPPER CENTRAL Y-AXIS DISPLACEMENT



CHANNEL _F0001 FILE: CH CLASS 100
 TIME (MS) 74.09 MIN @ 22.72 MS, -403359.94 MIN @ 310.00 MS
 TEST NUMBER 030212-1

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S
 LEFT REAR DOOR MID REAR Y-AXIS ACCELERATION

TRC INC. FRYSS 214 LEFT SIDE IMPACT TEST NUMBER 030212-1



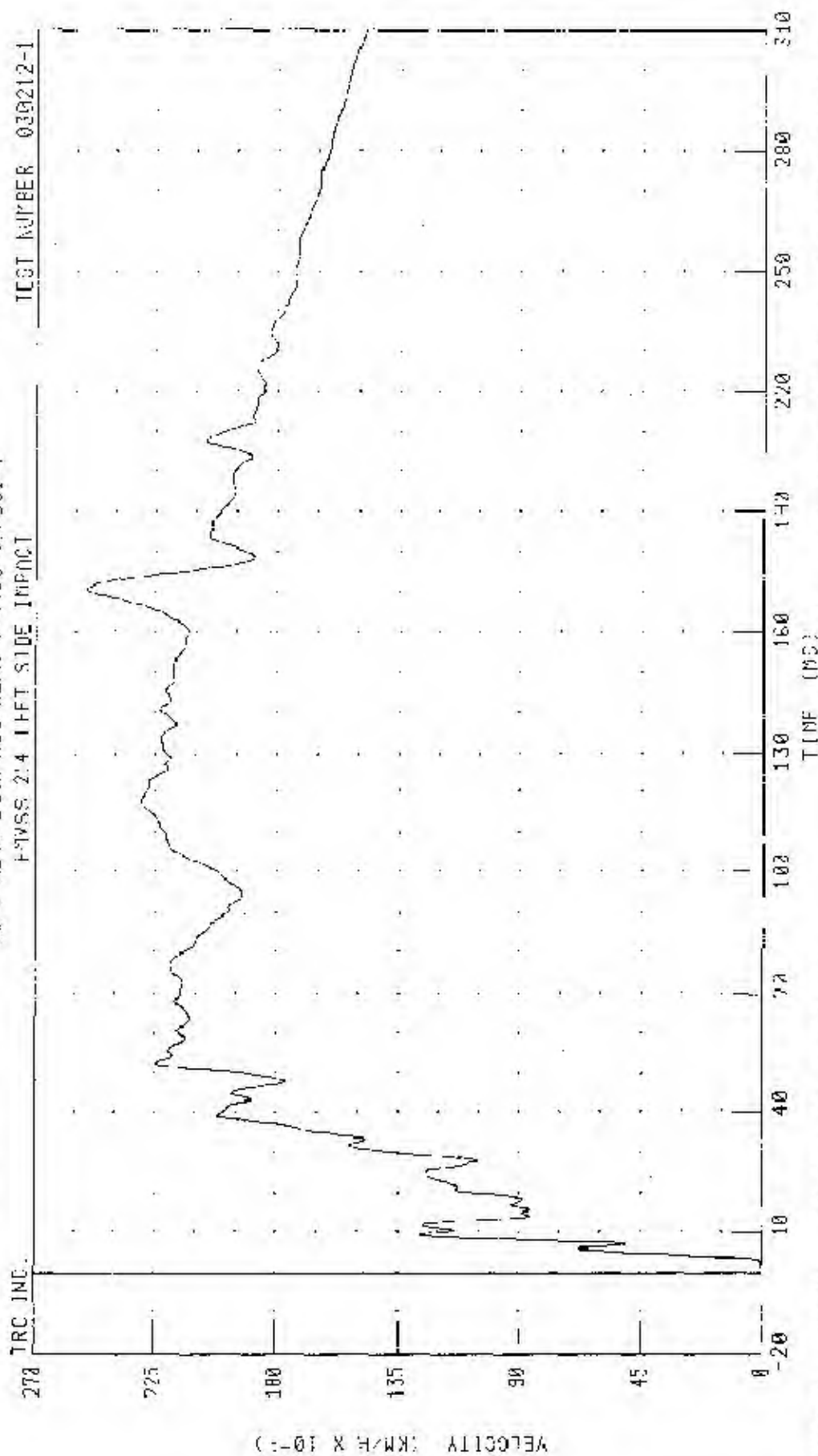
CHANNEL LRMVGI FILTER CH CLASS 60 PEAK DATA 52 81 0 0 7 52 MS; 32 14 0 0 174 48 MS

48/24 KPH 90 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2003 P4204 PROTECTOR S

LEFT REAR DOOR MID-REAR Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER 030212-1

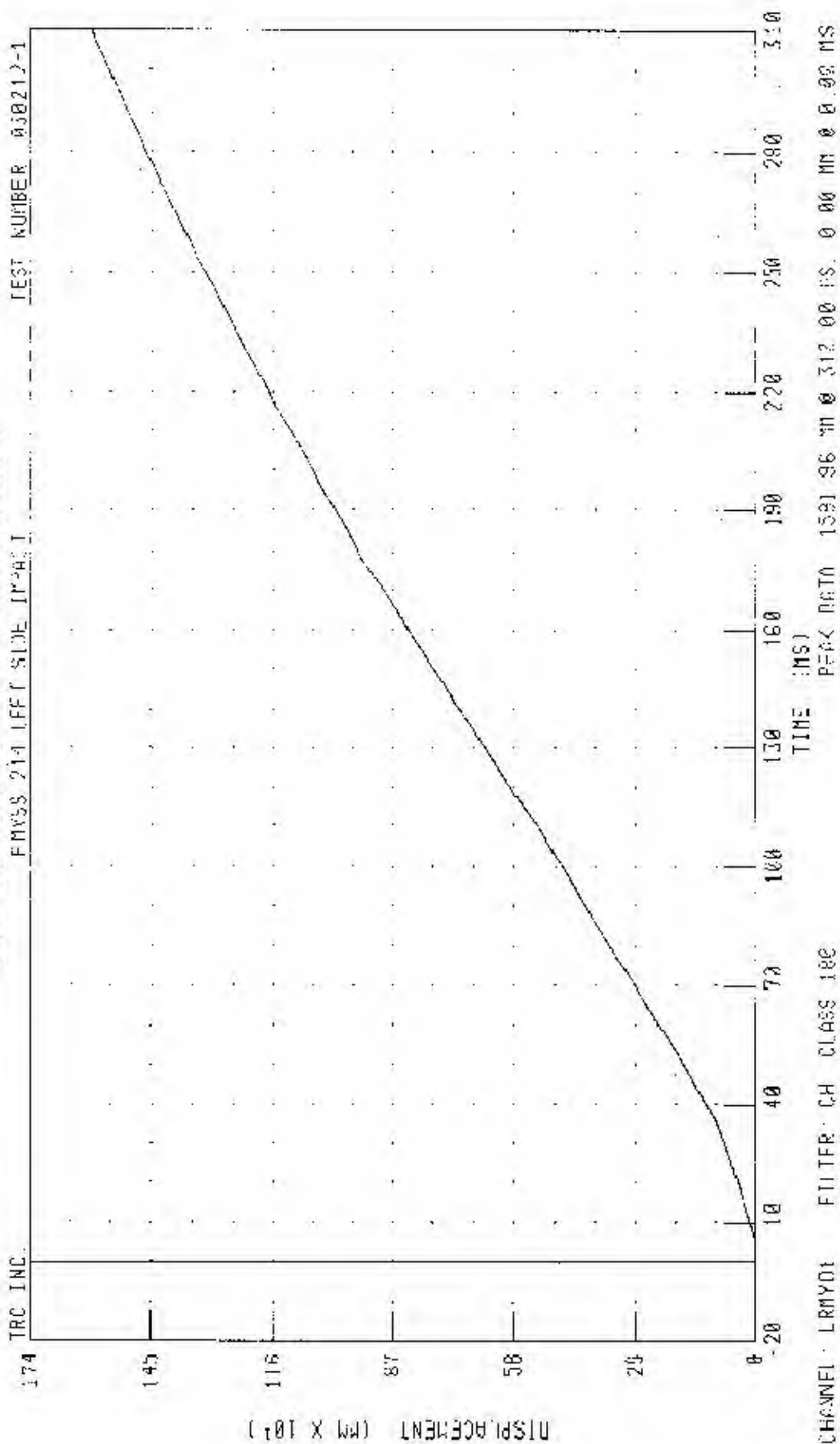


CHANNEL: LRMVY1 FILTER: CF, CLASS 100

PEAK DATA: 25.05 KM/H @ 170.80 MS; 0.00 KM/H @ 0.00 MS

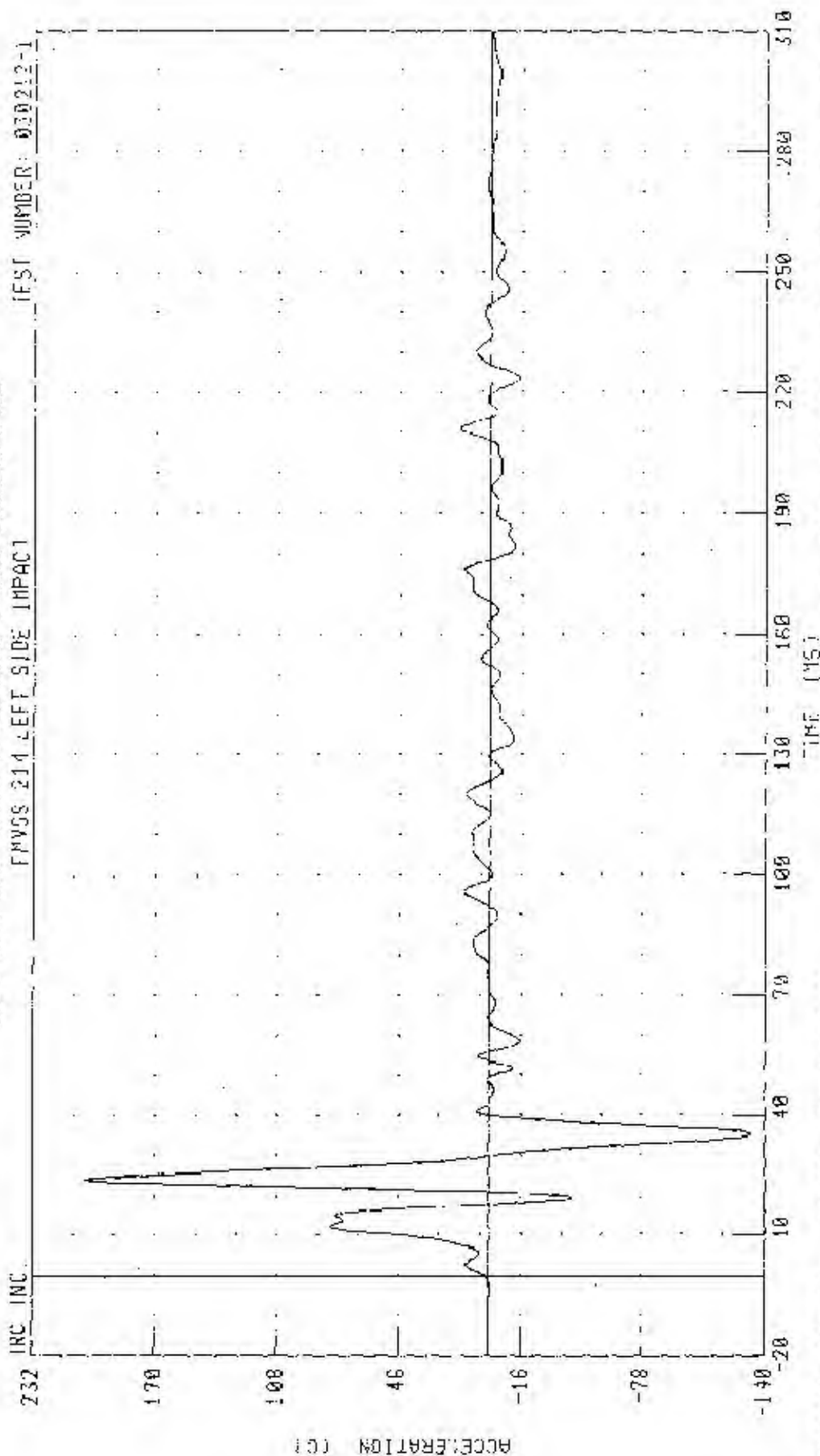
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

LEFT REAR DOOR MID-REAR X-AXIS DISPLACEMENT



48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

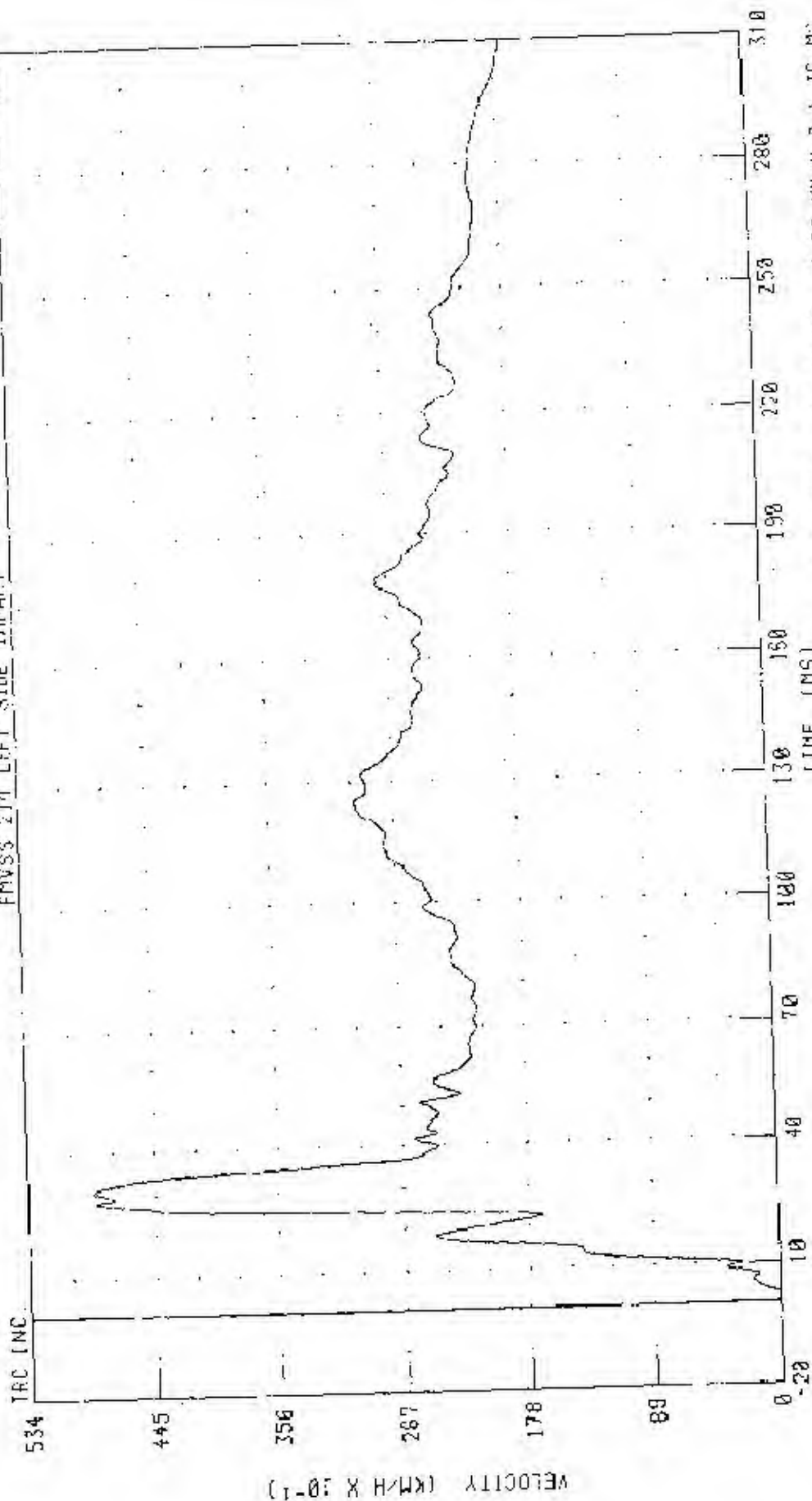
LEFT REAR DOOR UPPER CENTERLINE Y AXIS ACCELERATION



CHANNEL: LRUVC1 FILTER: CH. CLASS 50

PEAK DATA: 205.11 0.02456 MS, -133.54 0.03578 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTECT 5
 LEFT REAR QUARTER UPPER CENTERLINE Y-AXIS VELOCITY
 FMVSS 214 LEFT SIDE IMPACT TEST NUMBER: 030212-1

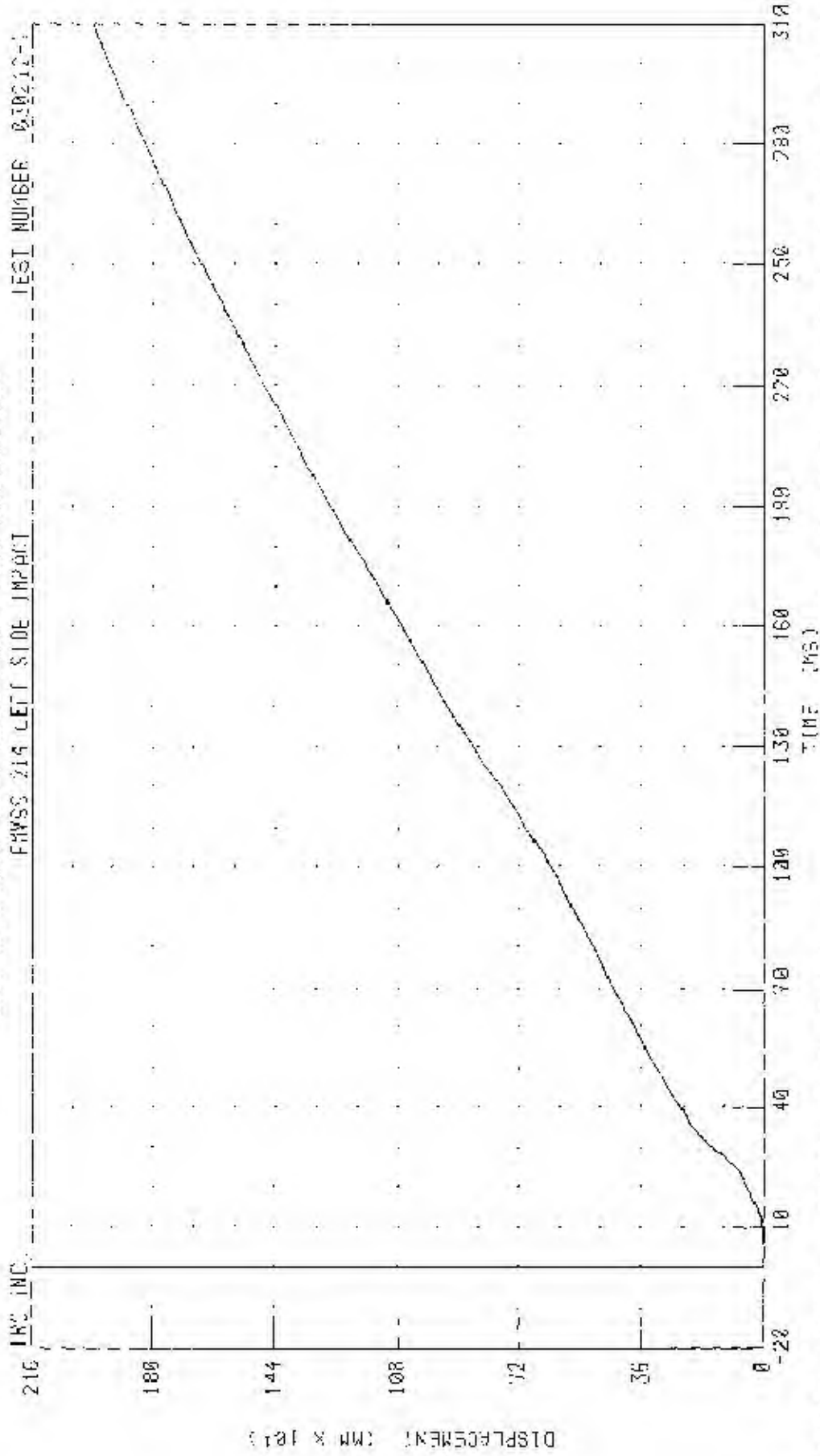


PEAK DATA 48 79 KM/H @ 31 12 MS; -0 02 KM/H @ 1 36 MS

CHANNEL: LRU0V1 FILTER: CH. CLASS 180

45/24 KPH 90 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2003 MAZDA PROTECT E

LEFT REAR DOOR UPPER CENTRAL LINE Y AXIS DISPLACEMENT



CHANNEL 1 LRU01 FILTER 04 CLASS 180

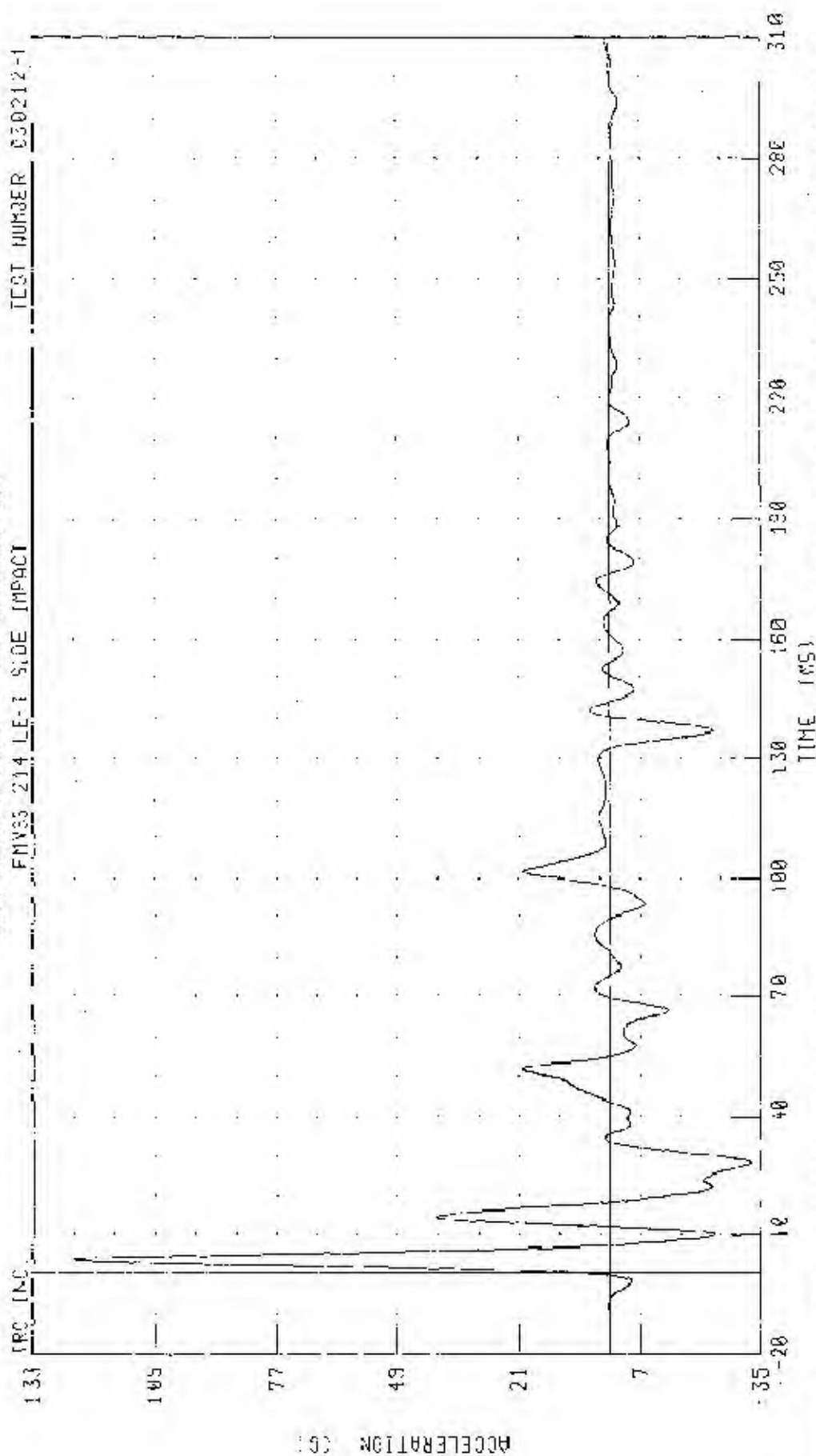
PEAK DATA: 1930 22 MM @ 310 00 MS; -0 01 MM @ 1 76 MS

48/74 KPH 90 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

LEFT LOWER R-POST Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER 030212-1



CHANNEL: ELAY51 FILTER: 0.1 HZ CLASS: 60

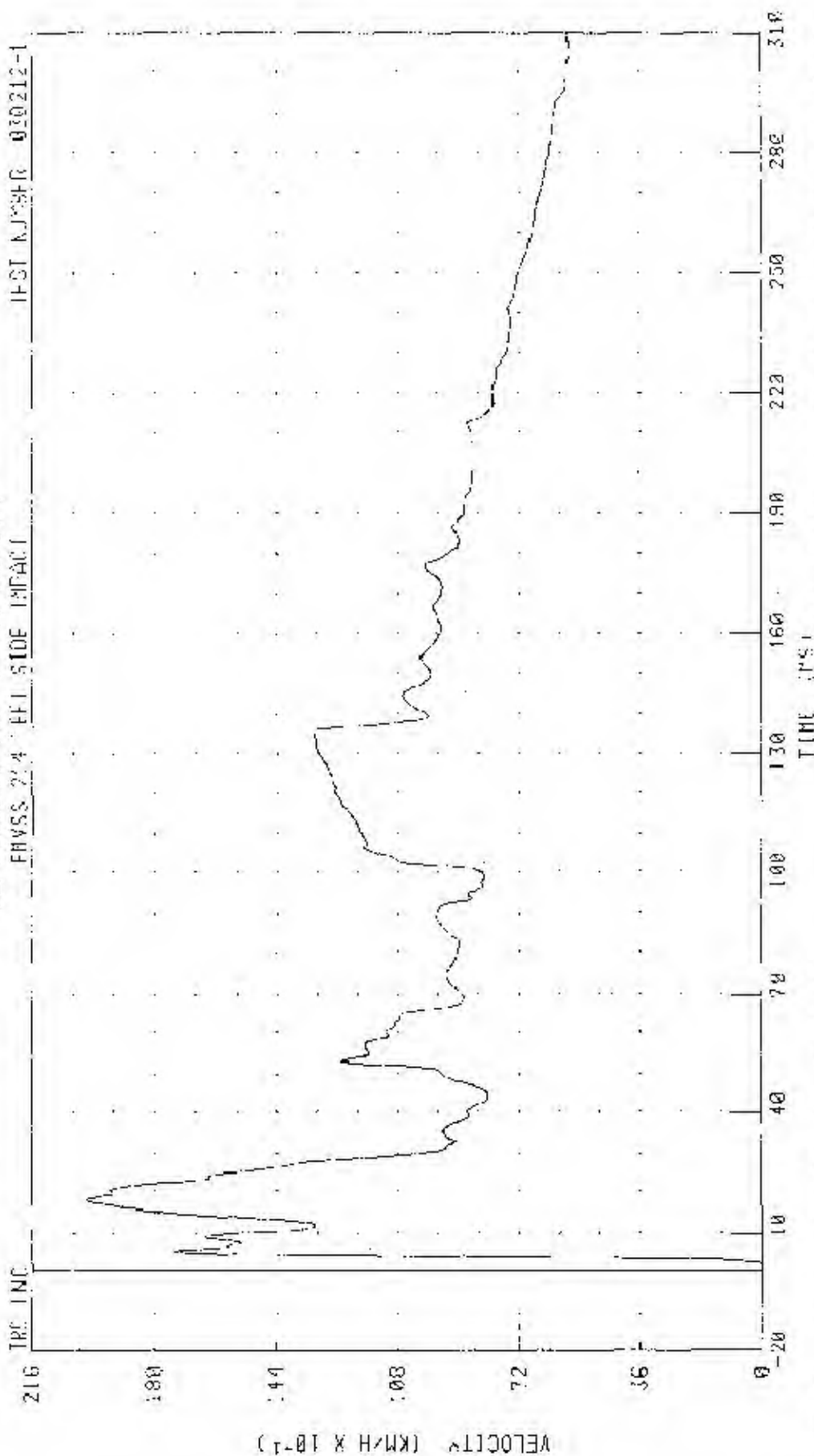
PEAK DATA 123.61 G @ 130.00 MS, -32.65 G @ 28.18 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2800 MAXIMA PROJECT 5

LEFT LOWER A POST Y AXIS VELOCITY

FMVSS 224 EFF. SIDE IMPACT

POST IMPACT 030212-1



TIME (MS)

PEAK DETO: 18.55 KPH 0 17 84 MS -E 05 KPH 0 1 50 MS

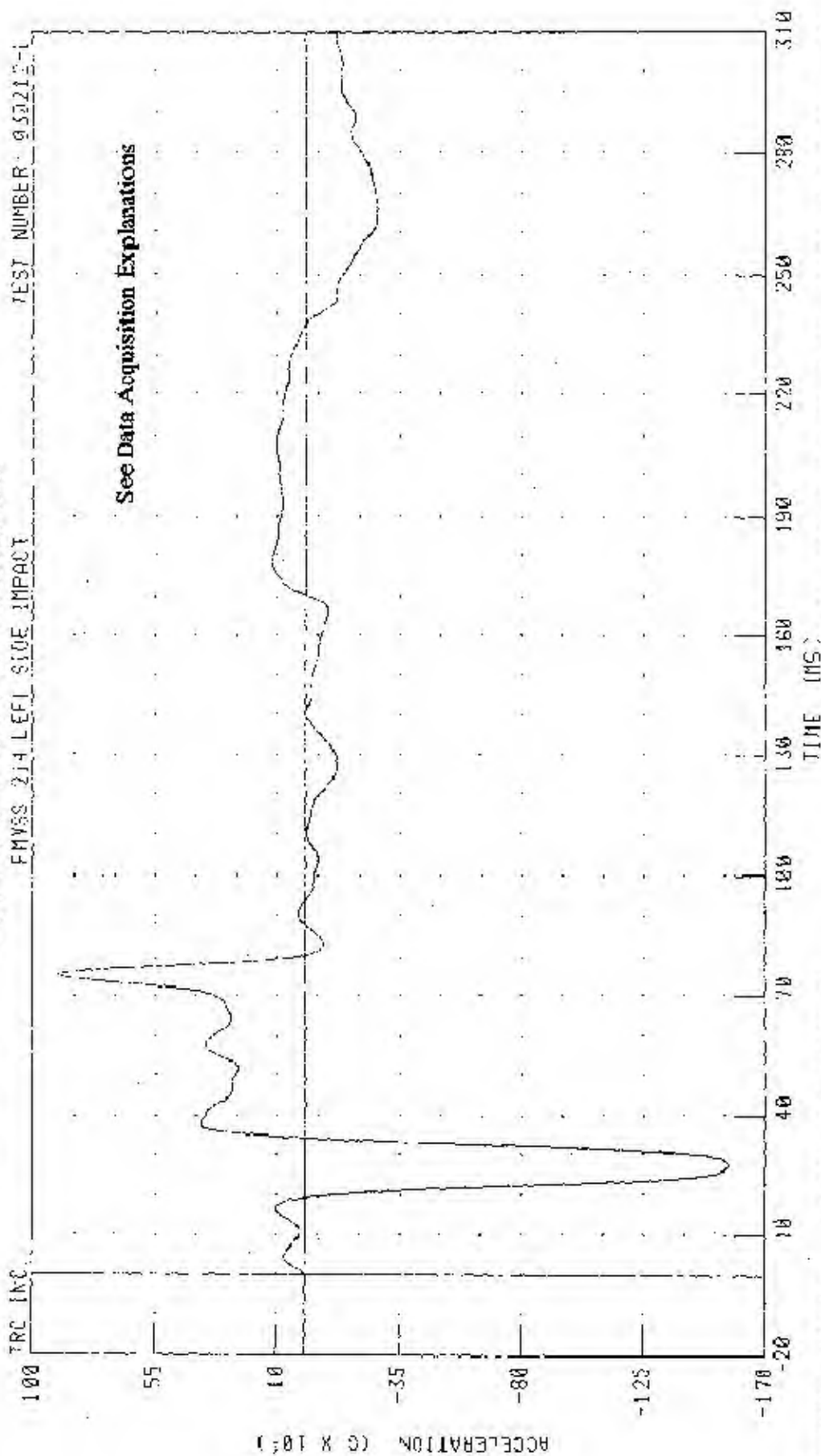
CHANNEL: LAYW1 FILTER: CH1, CLOS 180

48/74 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

LEFT SIDE OF A-POST Y-AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 050212-1



CHANNEL 1 MAYCT FILTER CH CLASS 62

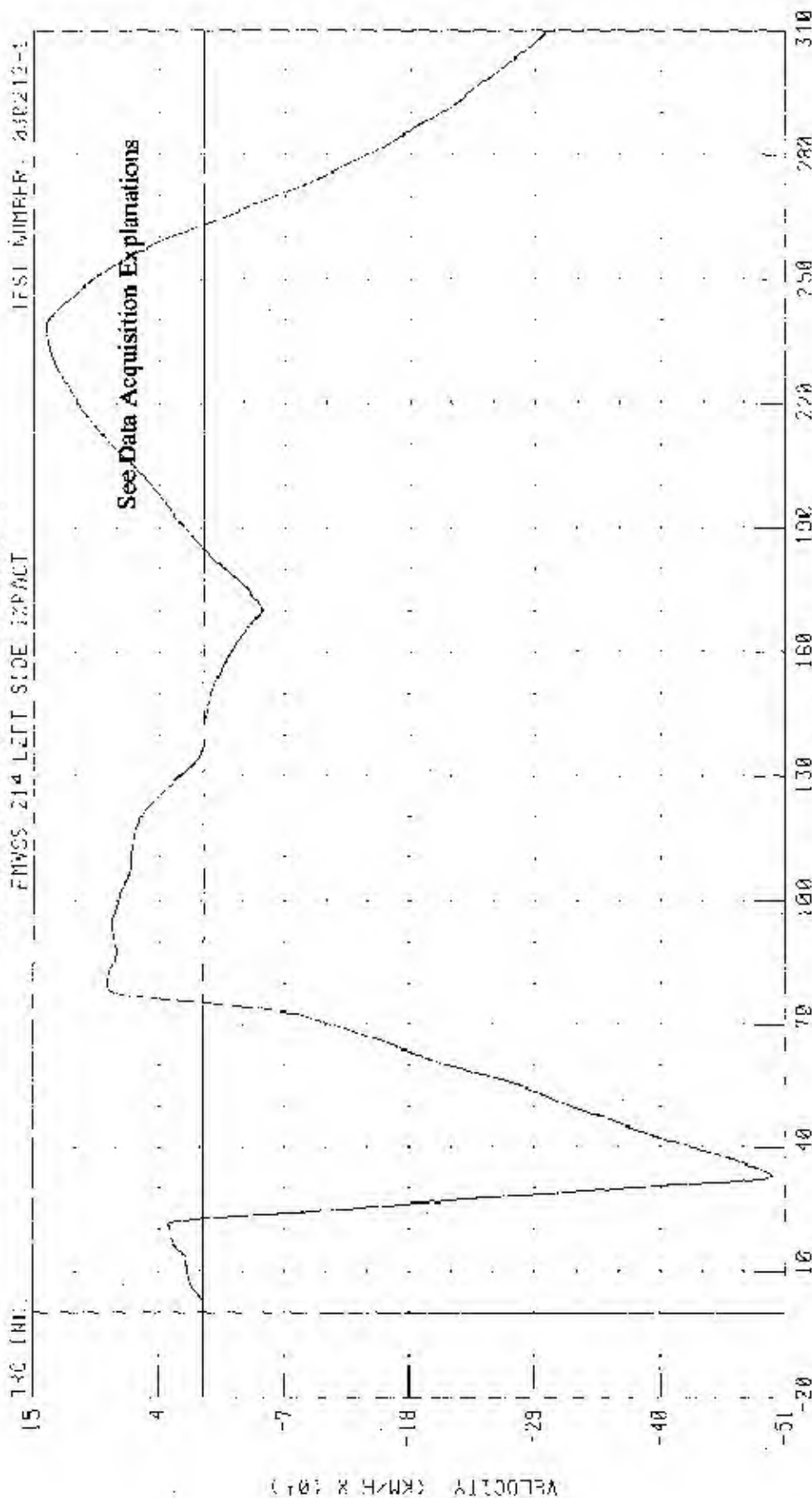
PEAK DATA 909.45 G @ 75.12 MS, -1502.48 G @ 27.44 MS

80-24 KPH 90 DEGREE SIDE IMPACT (MOVING REFURABLE BARRIER) INTO LEFT SIDE OF 2003 HAZOPA PRINCE 5

LEFT MECHANICAL POST Y-AXIS VELOCITY

FWSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



CHANNEL: CHAN1 FILTER: CH CLASS: 190

TIME (MS)

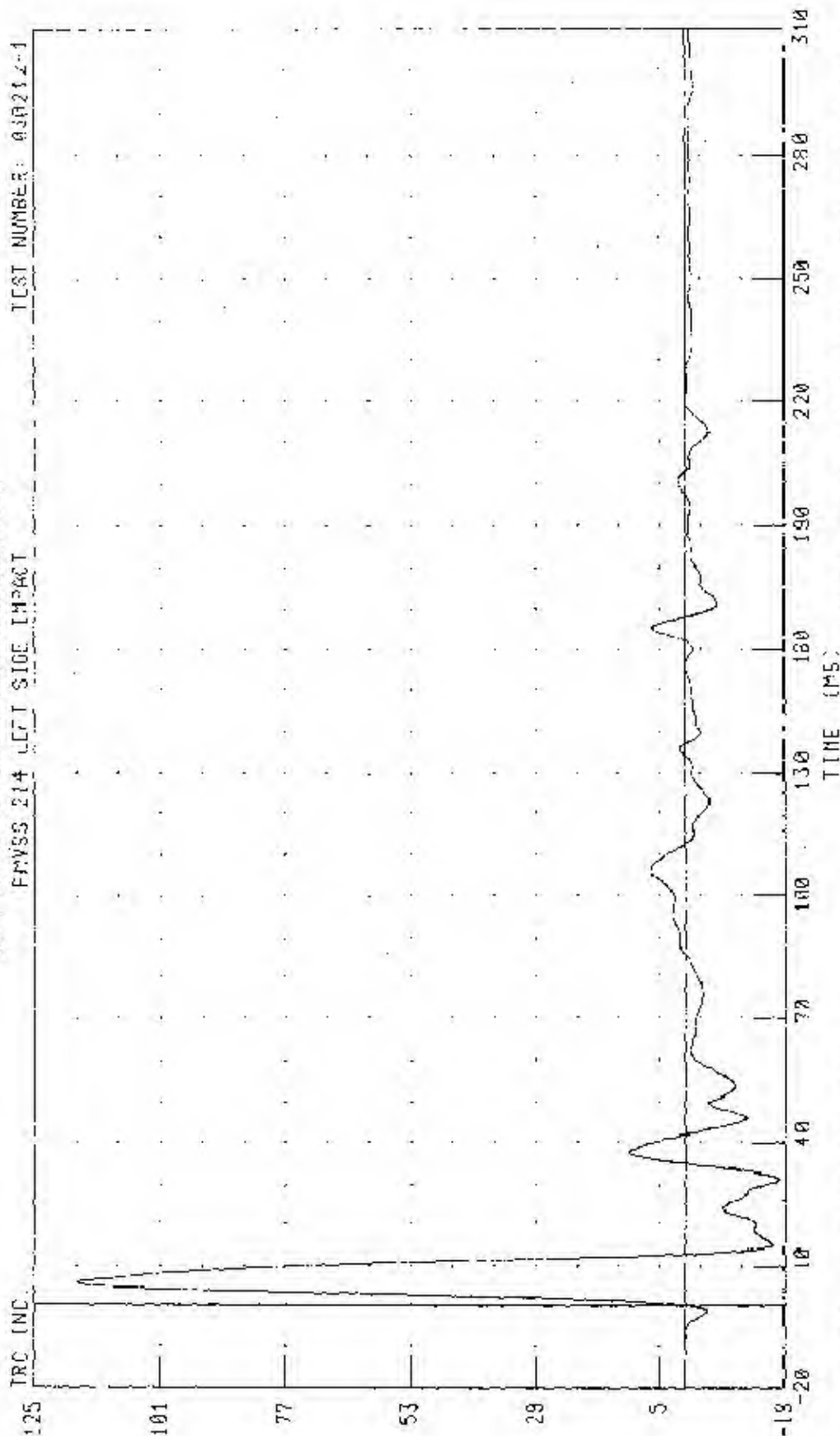
PEAK DATA: 138.10 KM/H @ 233.80 MS; 408.49 CH @ 33.12 MS

48/24 KPH 90 DEGREE SIDE IMPACT IMPINGING DEFORMABLE BARRIER INTO TEST SITE OF 2003 KAZDA PROTEGE 5

LEFT LOWER 8-POS: Y-AXIS ACCELERATION

FRVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 03R212-1



TIME (MS)

CHANNEL: LLBYG1 FILTER: CH CLASS: 50

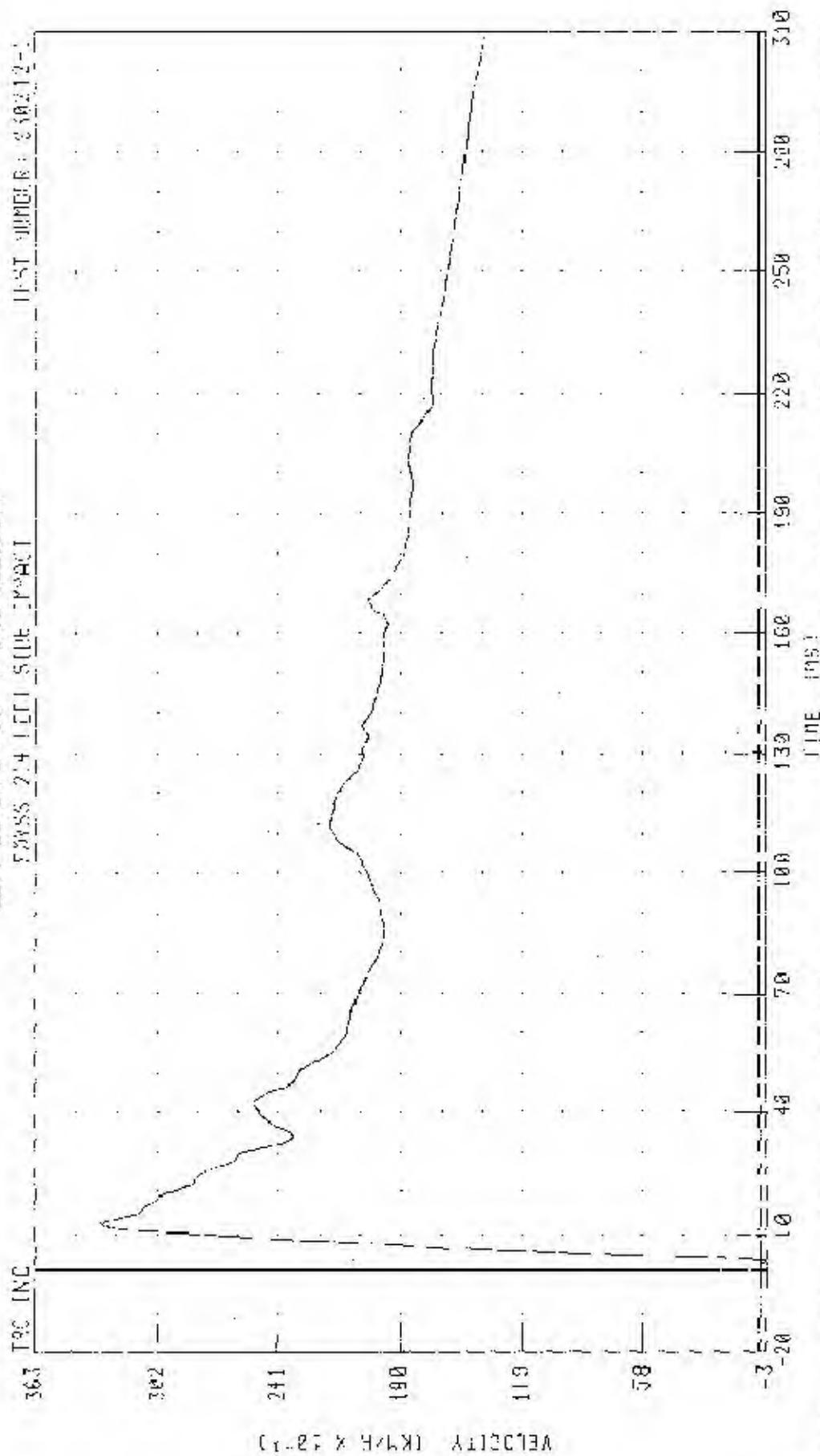
PEAK DATA: 117.26 G @ 5.52 MS; 18.01 G @ 31.44 MS

42/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

LEFT LOWER B FDS Y AXIS VELOCITY

CROSS 2/4 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



CHANNEL: LFBYV1 FILTER: 50 CLASS 180

TIME (MS)

PEAK DATA: 33 10 27/10 12 56 19: -0.28 MPH 0 2 24 95

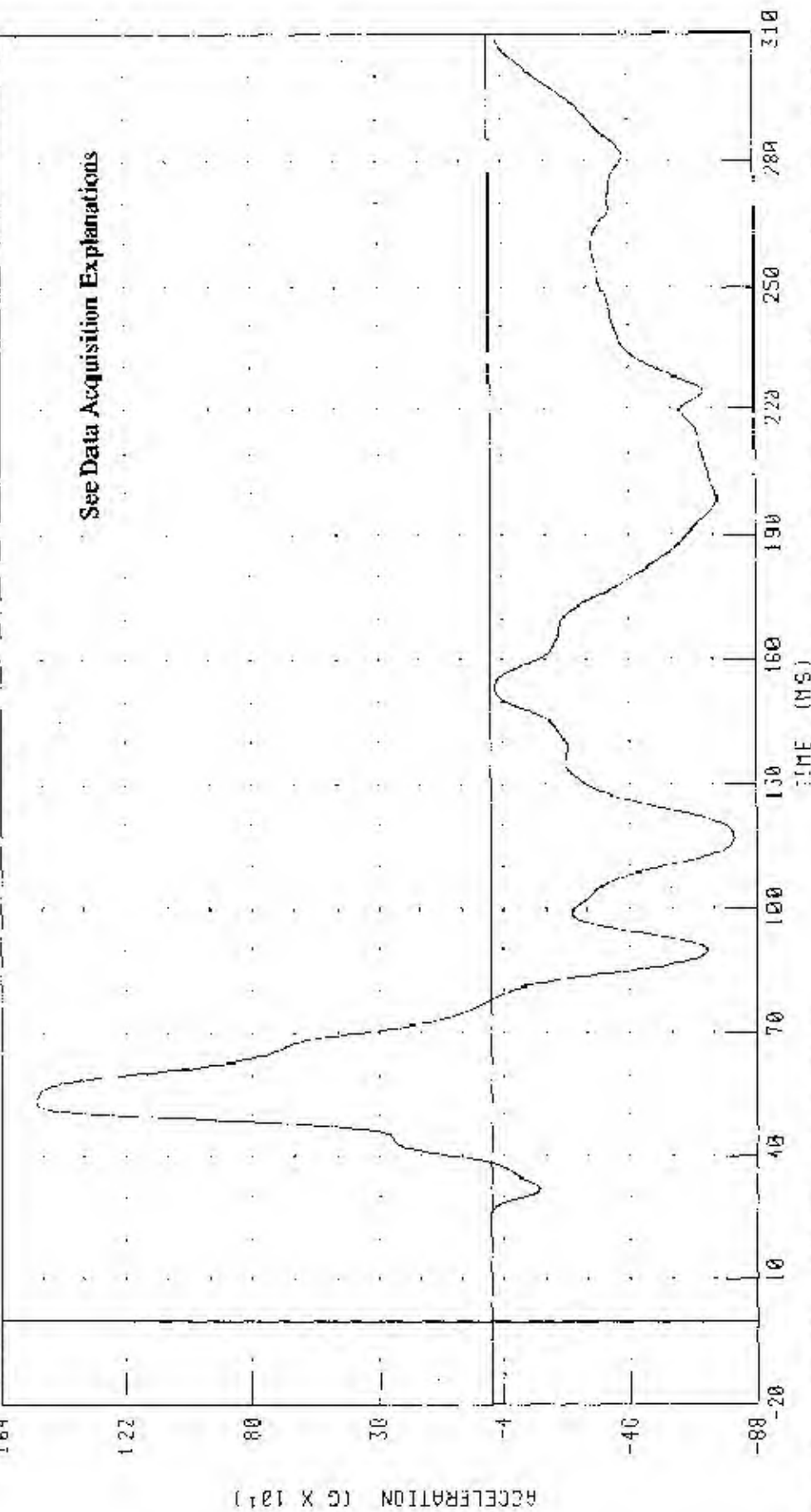
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 200X MAZDA PROTÉGÉ 5

LEFT MIDDLE B POST Y-AXIS ACCELERATION

IRC INC.

MYSS 214 LEFT SIDE IMPACT

TEST NUMBER 030212-1



PEAK DATA: 1522 97 G @ 53 52 MS, 805 06 G @ 117 52 MS

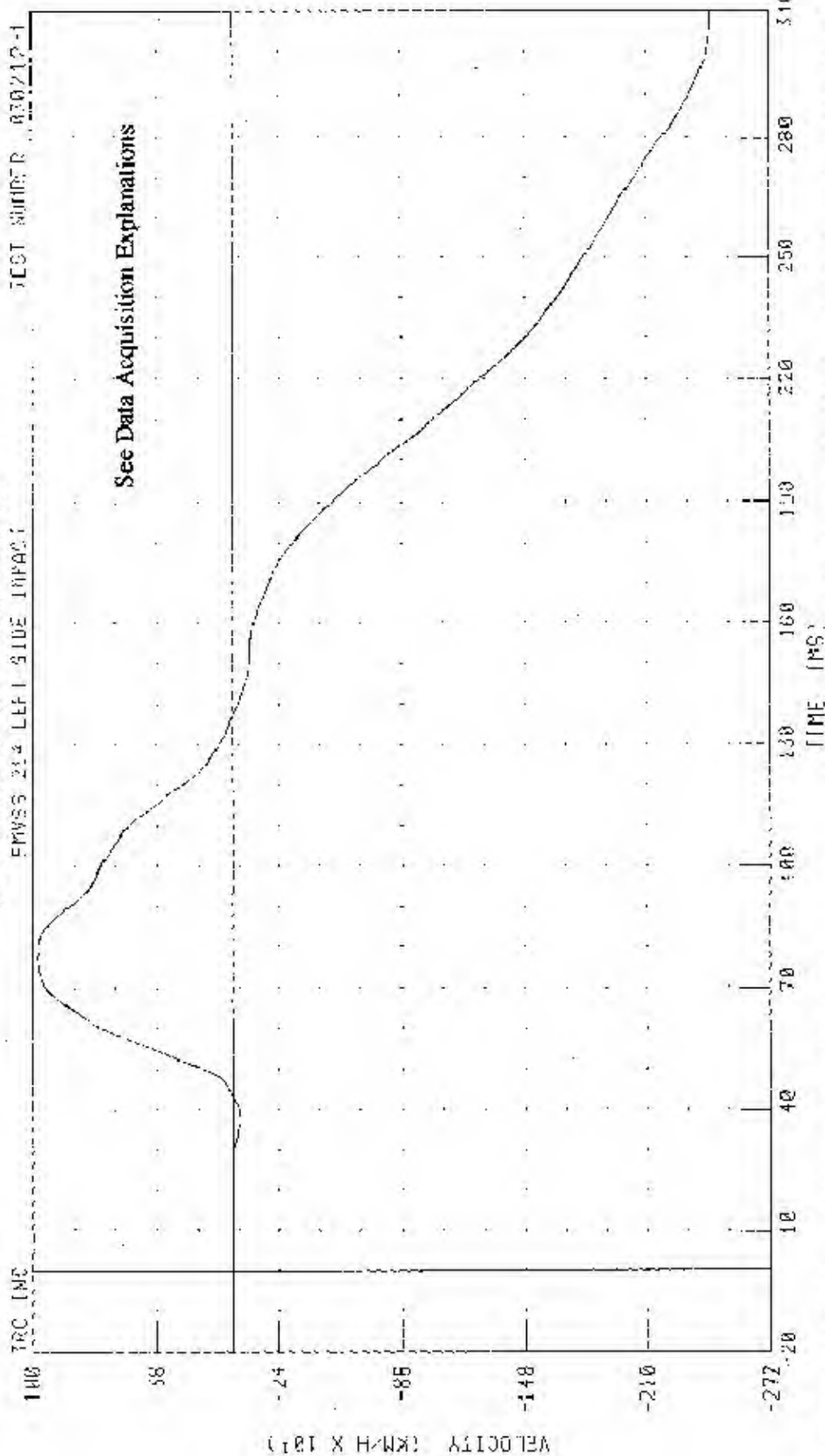
CHANNEL 1MBY01 FILTER: CH. CLASS 60

18/24 KPH 3R IN-EDGE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROCEED 5

LEFT TUBULE B-POST Y-AXIS VELOCITY

PRVSS 214 LEFT SIDE IMPACT

TEST NUMBER 030212-1



CHANNEL: LMBVY1 FILTER: CN1 CLASS: 100

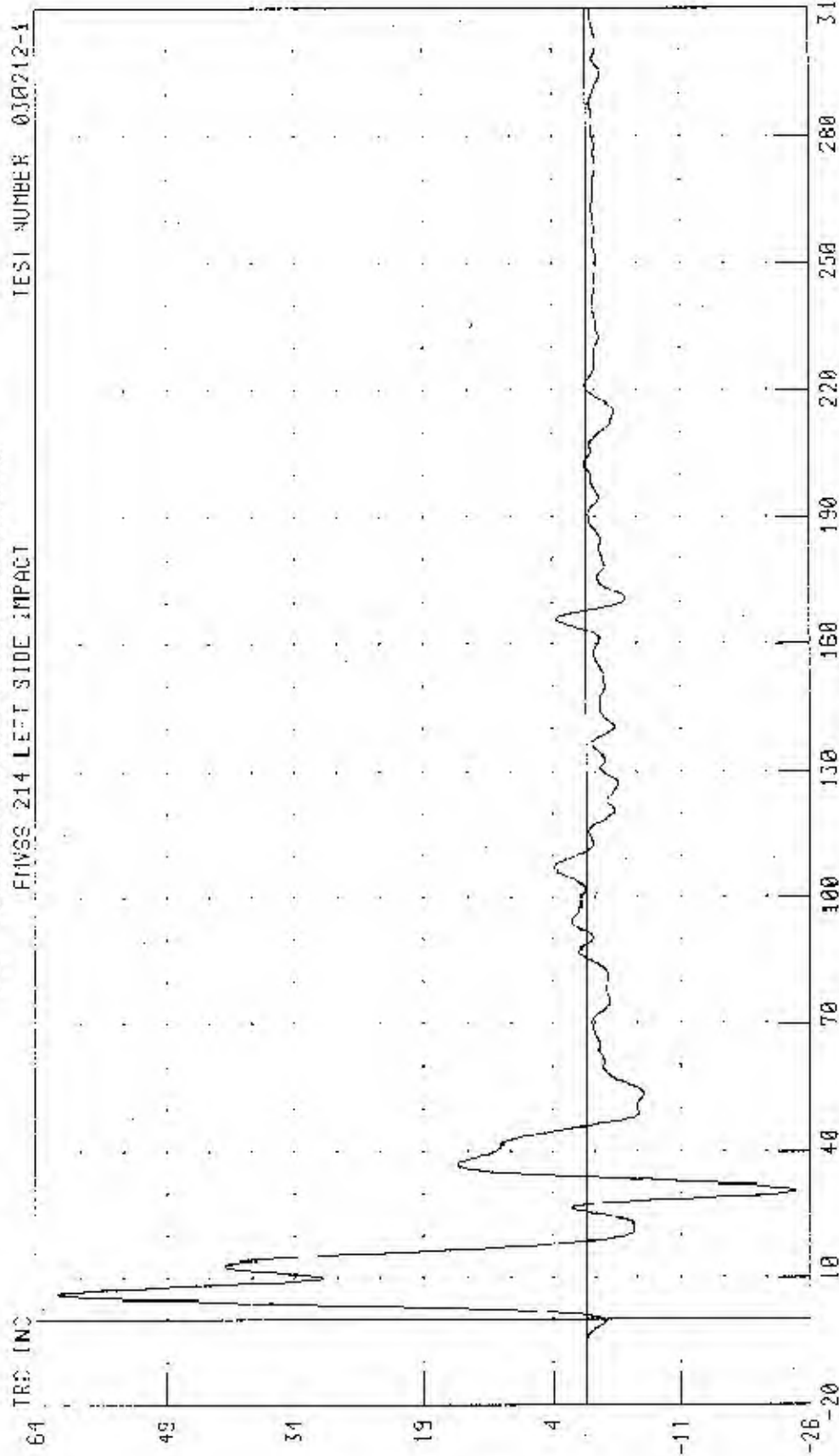
PEAK DATA: 977.78 KM/H @ 77.92 MS; -2427.85 KM/H @ 310.00 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

LEFT FRONT SEAT TRACK Y-AXIS ACCELERATION

TEST NUMBER 030212-1

FMVSS 214 LEFT SIDE IMPACT



ACCELERATION (G)

TIME (MS)

CHANNEL: LFTY01 FILTER: CH CLASS 60

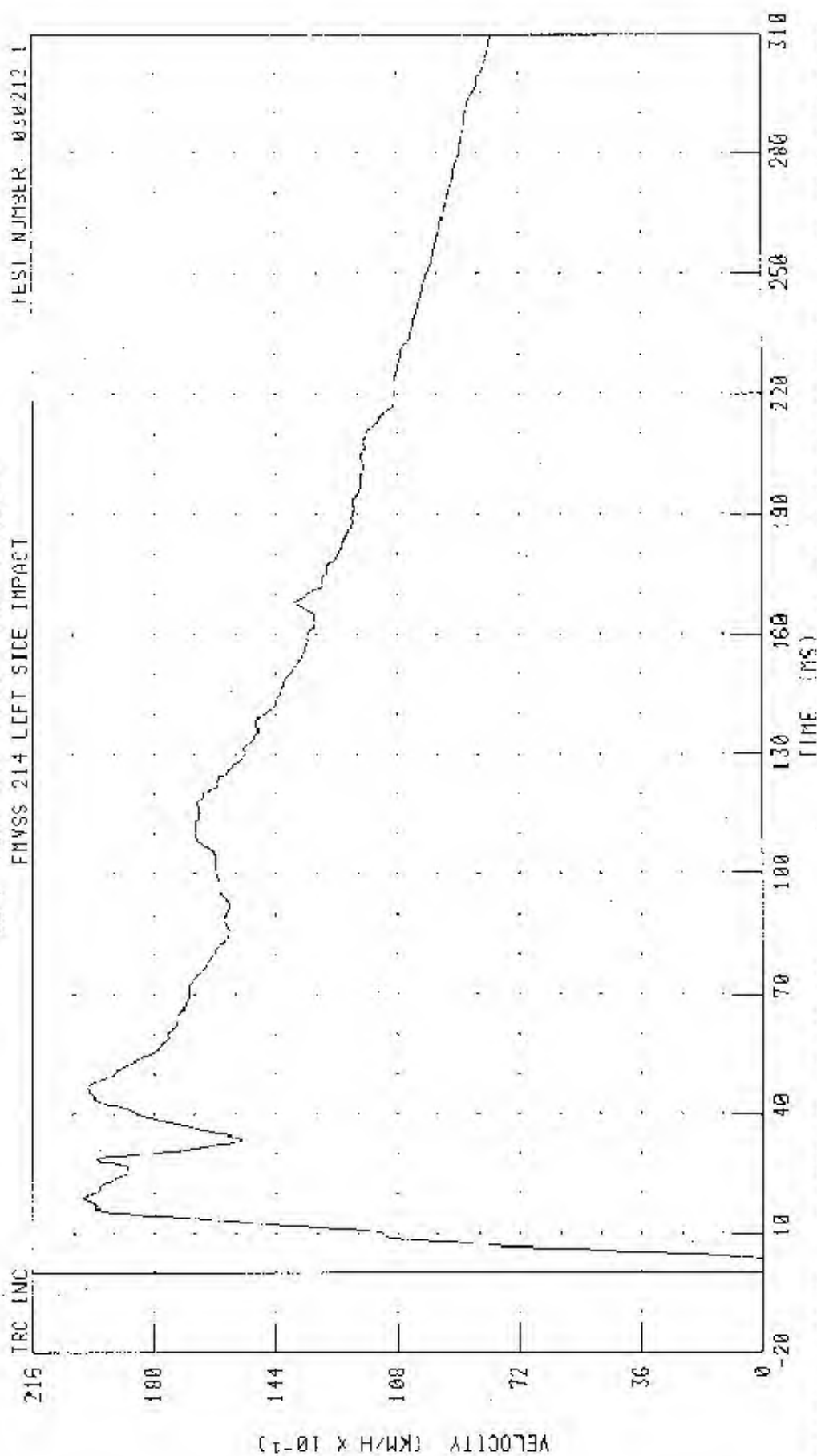
PEAK DATA: 61.60 G @ 6.08 MS; -24.33 G @ 30.64 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

LEFT FRONT SPAT TRACK Y AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



CHANNEL: LFTYV1 FILTER: CH CLASS 190

PEAK DATA: 20.14 KM/H @ 18.88 MS; -3.04 KM/H @ 2.00 MS

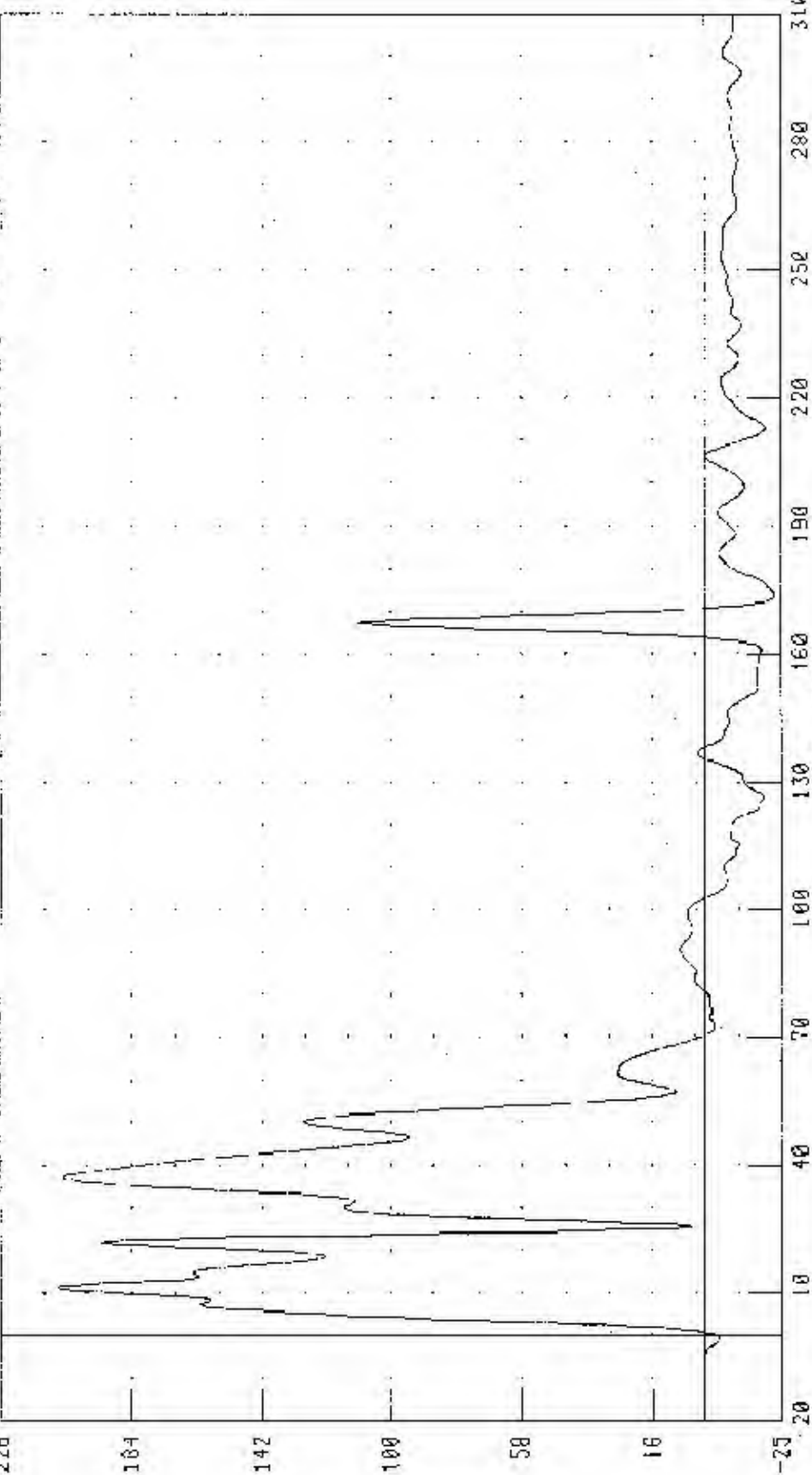
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5

LEFT REAR SEAT TRACK Y-AXIS ACCELERATION

TRC INC

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER 030212-1



CHANNEL LRTYC1 FILTER CH. CLASS 50

PEAK DATA 20 85 0 0 11 36 MS; -2 28 6 6 173.84 MS

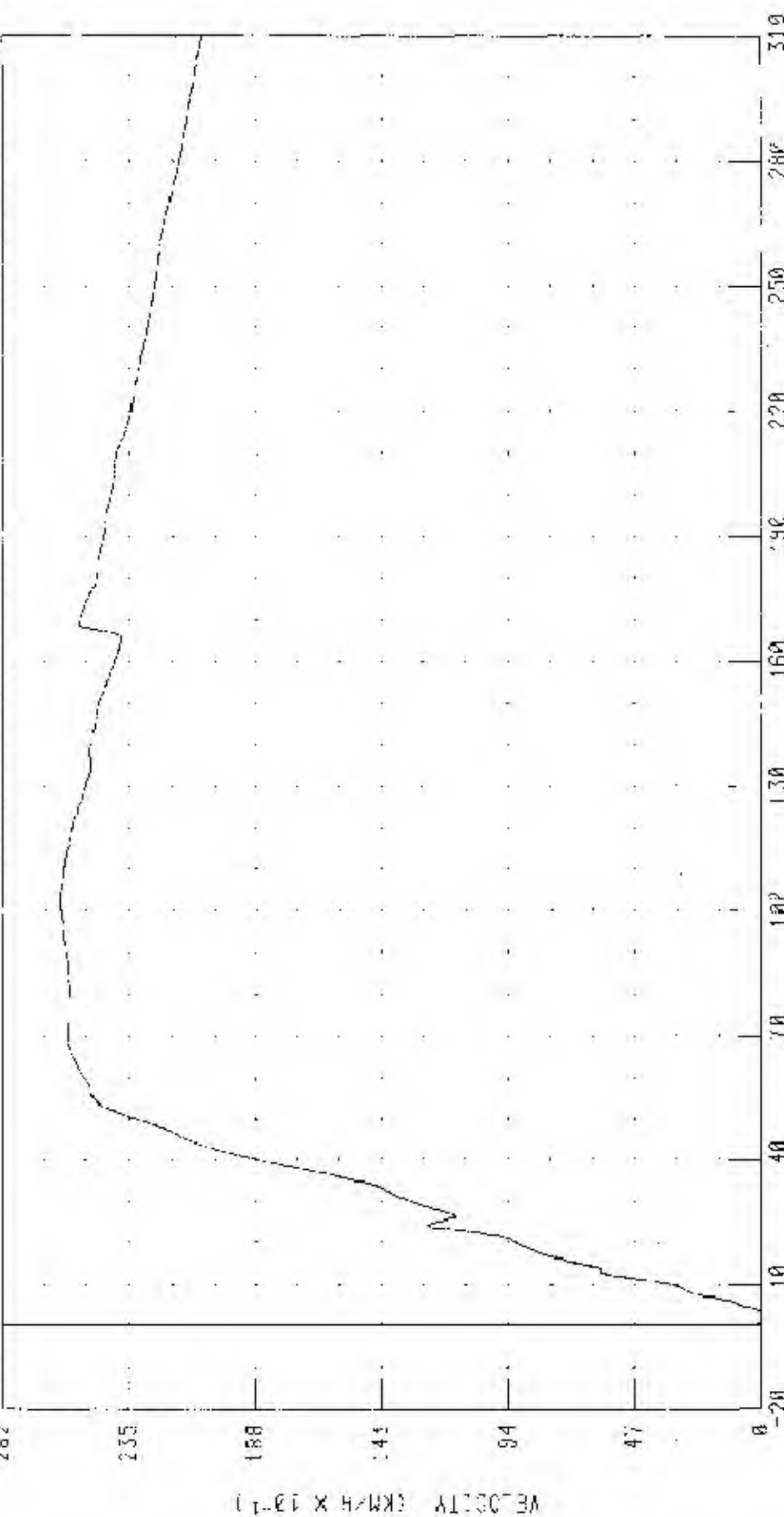
48/24 MPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2ND FLOOR PROTECTED BY

LEFT REAR SEAT CROCK Y-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

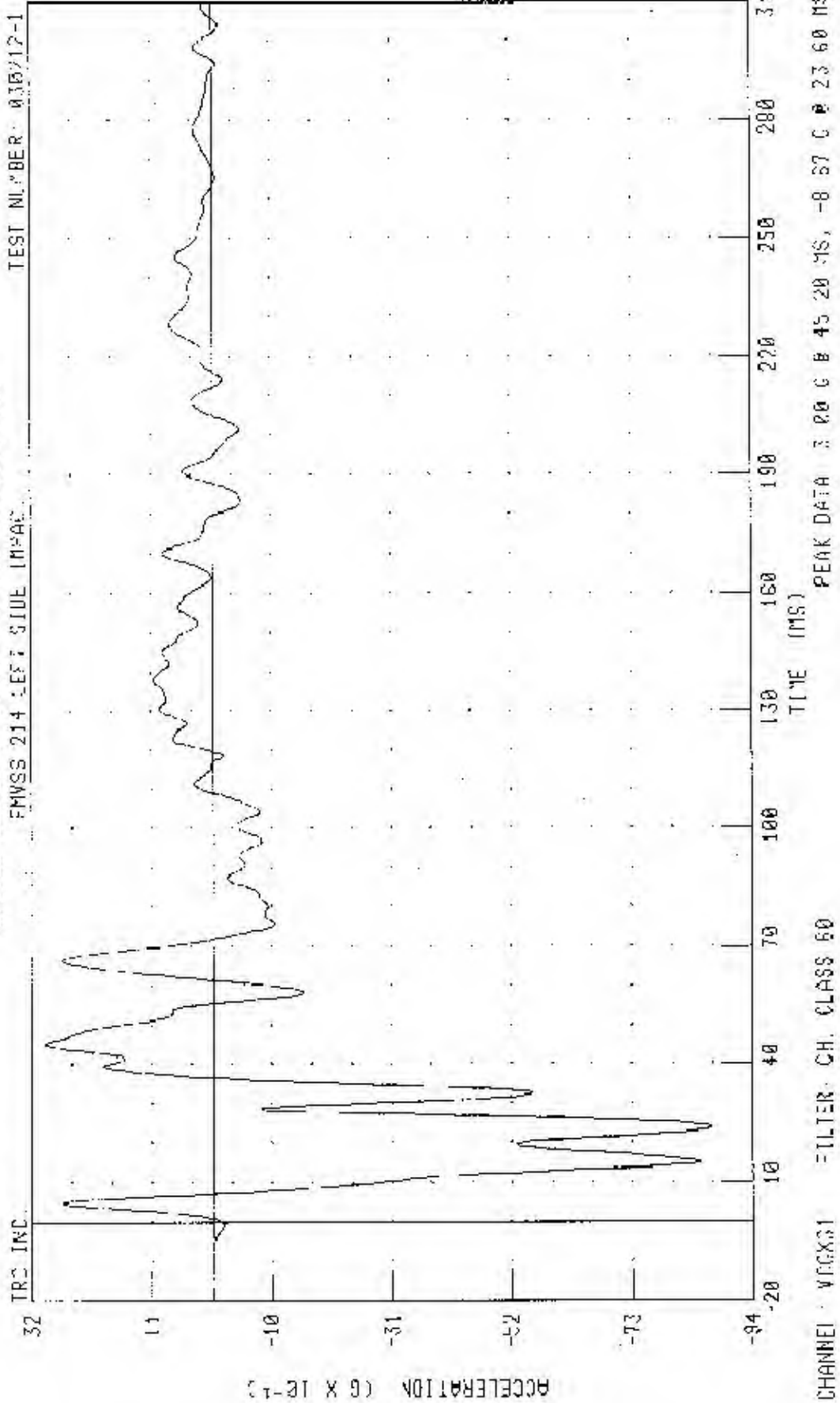
TEST NUMBER 030212-1

TRC INC.



CHANNEL: LRIYV1 FILTER: 15 CLASS 130
PEAK DATA: 26 08 KM/H @ 104 04 MS; -0 02 KM/H @ 2 53 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE 5
 VEHICLE CENTER OF GRAVITY X-AXIS ACCELERATION

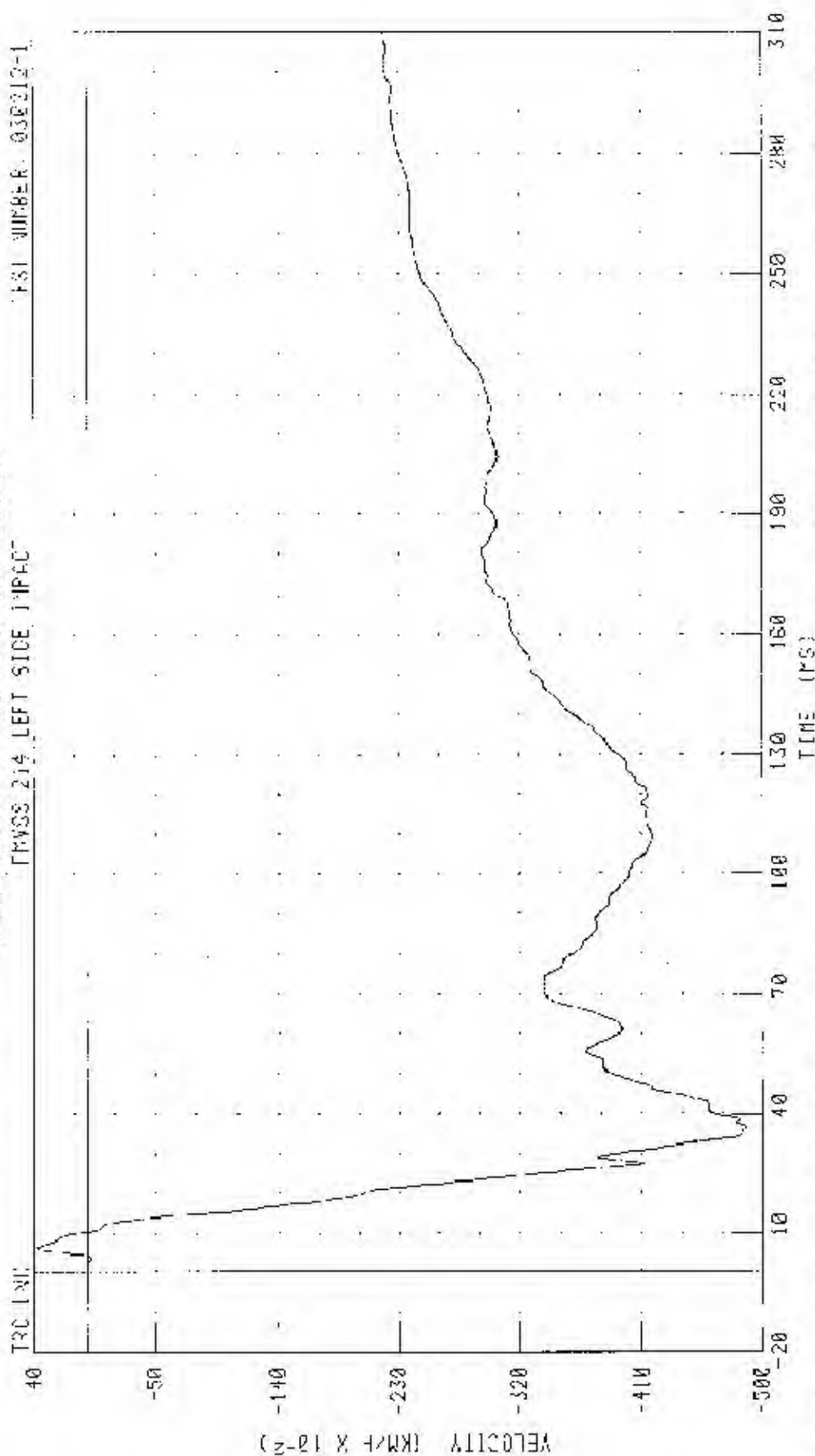


48/24 KM/H 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARREL) INTO 1-1 SIDE OF 2003 MAZDA PROTEGE 5

VEHICLE CENTER OF GRAVITY X-AXIS VELOCITY

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1

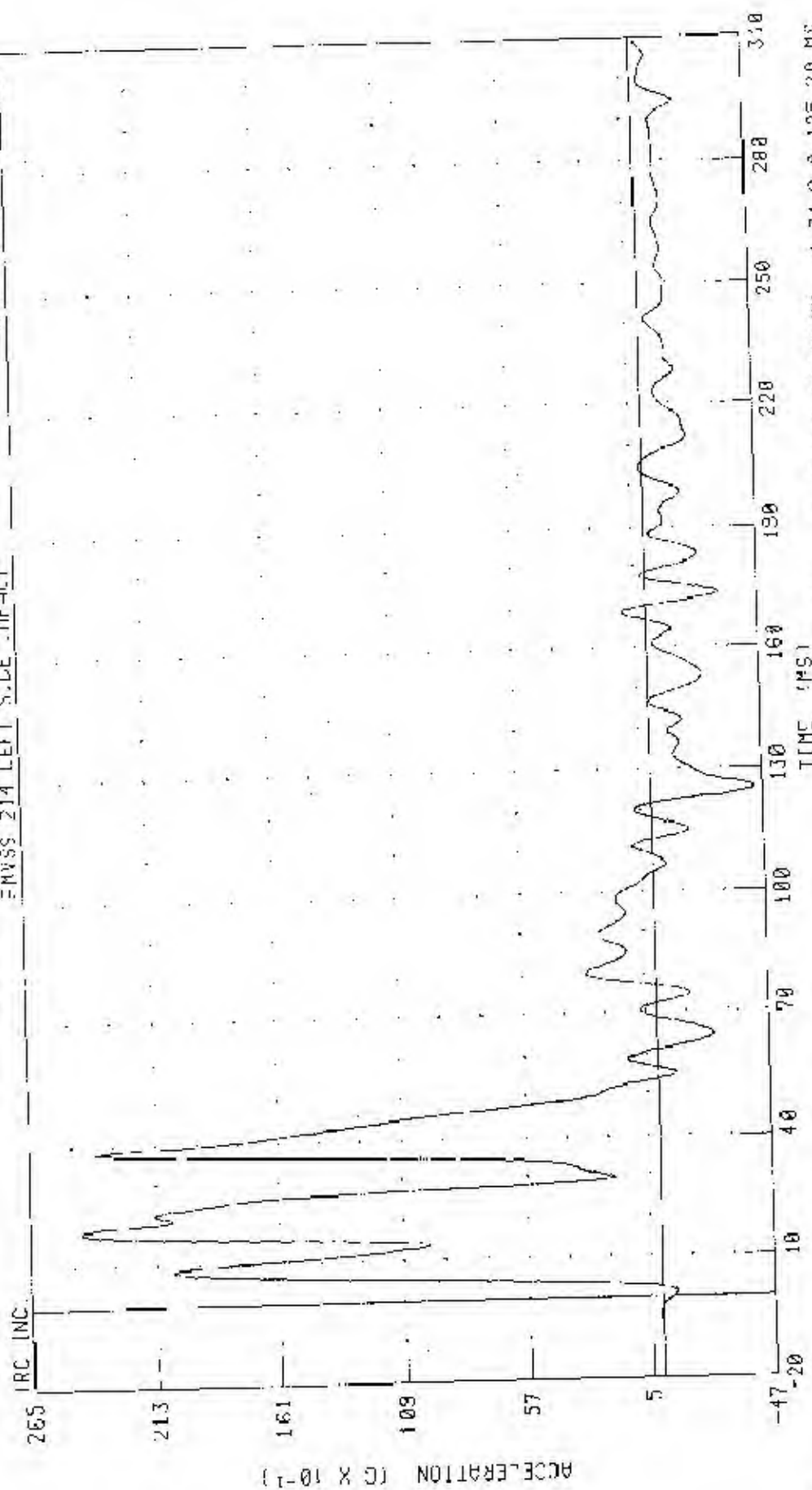


CHANNEL: V00XV1 - FILTER: CH. CLASS: 180

PEAK DATA: 0.38 KM/H @ 0.38 MS, 4.00 KM/H @ 36.48 MS

40/24 KFR 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 HAZARD PROTECT 5
 VEHICLE CENTER OF GRAVITY Y AXIS ACCELERATION
 TEST NUMBER 030212-1

ENVSS 214 LEFT SIDE IMPACT



PEAK DATA: 24 42 G @ 13.72 MS, -4 34 G @ 125.20 MS

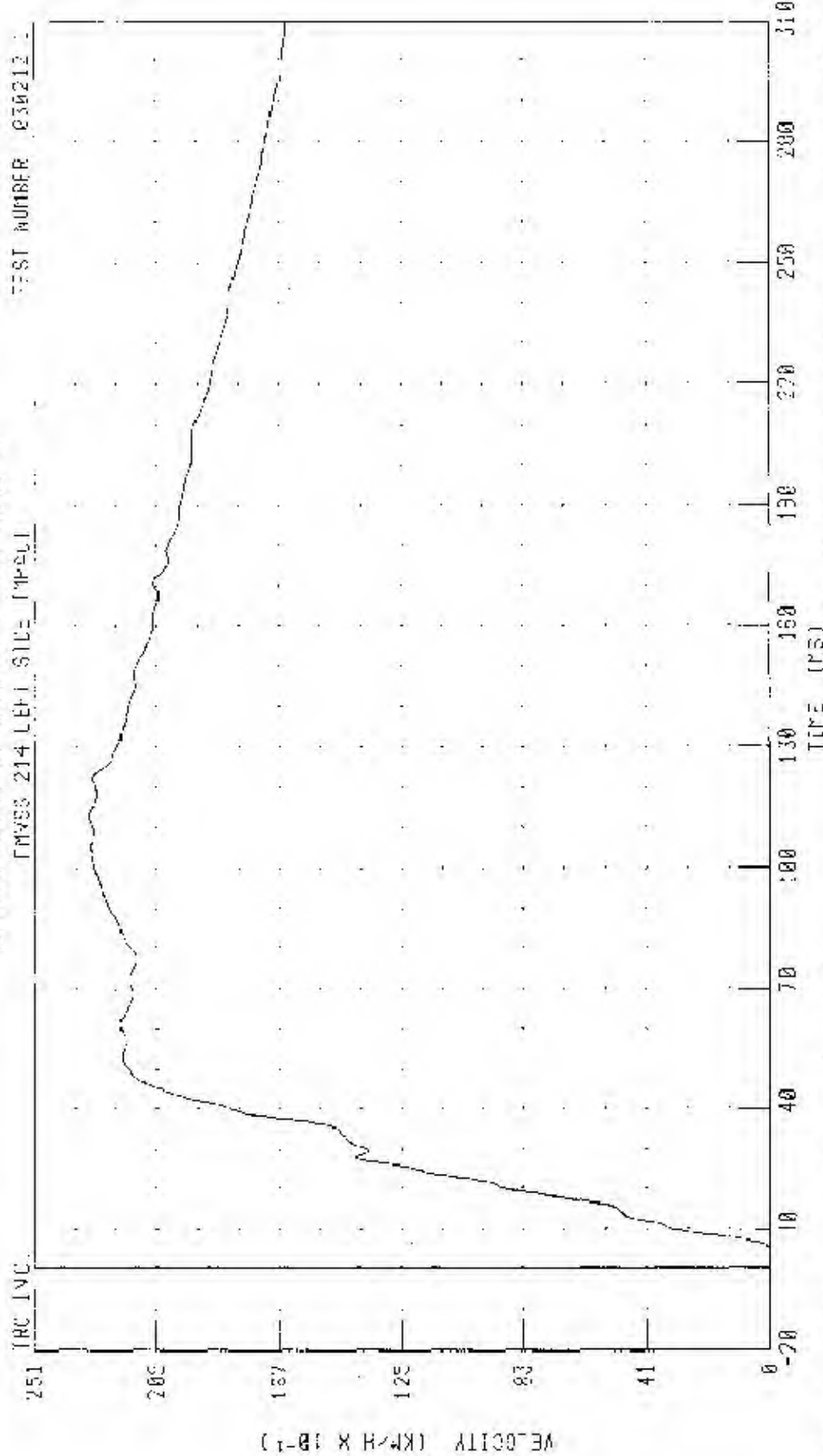
CHANNEL: VCCY01 FILTER: CH CLASS: 60

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFLECTABLE BARRIER) INTO LEFT SIDE OF 2003 HAZON R30TECE 5

VEHICLE CENTER OF GRAVITY Y-AXIS VELOCITY

TEST NUMBER 030212-1

FMVSS 214 LEFT SIDE IMPACT

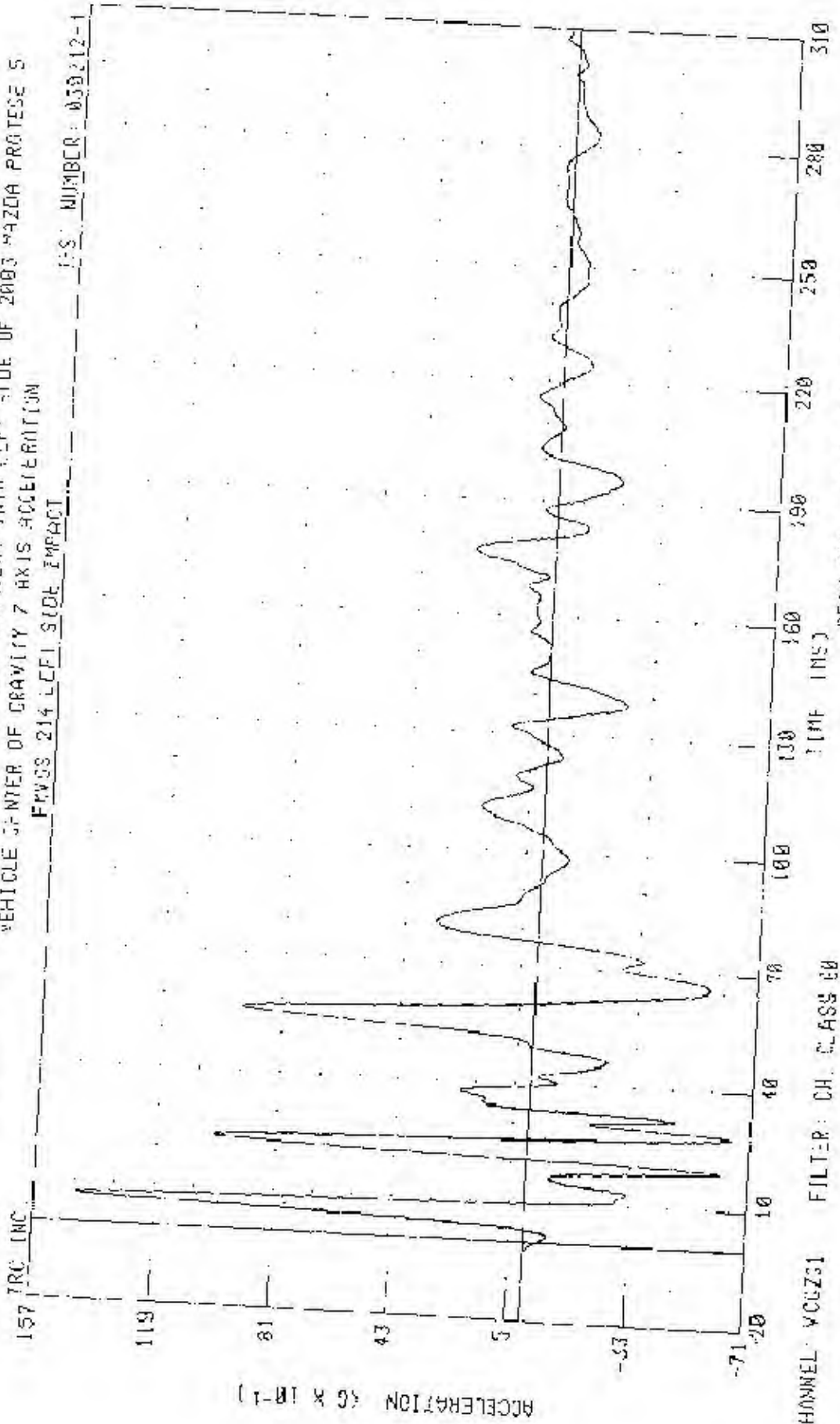


CHANNEL: V03Y01 FILM: CII CLASS 180

PEAK DATA: 23.36 KPH @ 113.04 MS, 0.30 GPH 0 0 00 FS

48/24 MPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S
 VEHICLE CENTER OF GRAVITY Z AXIS ACCELERATION
 FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 050212-1



CHANNEL: V00Z01 FILTER: CH. CLASS 00

PEAK DATA: 14.39 G @ 6.96 MS, 3.52 G @ 28.00 MS

ACCELERATION (G X 10^-1)

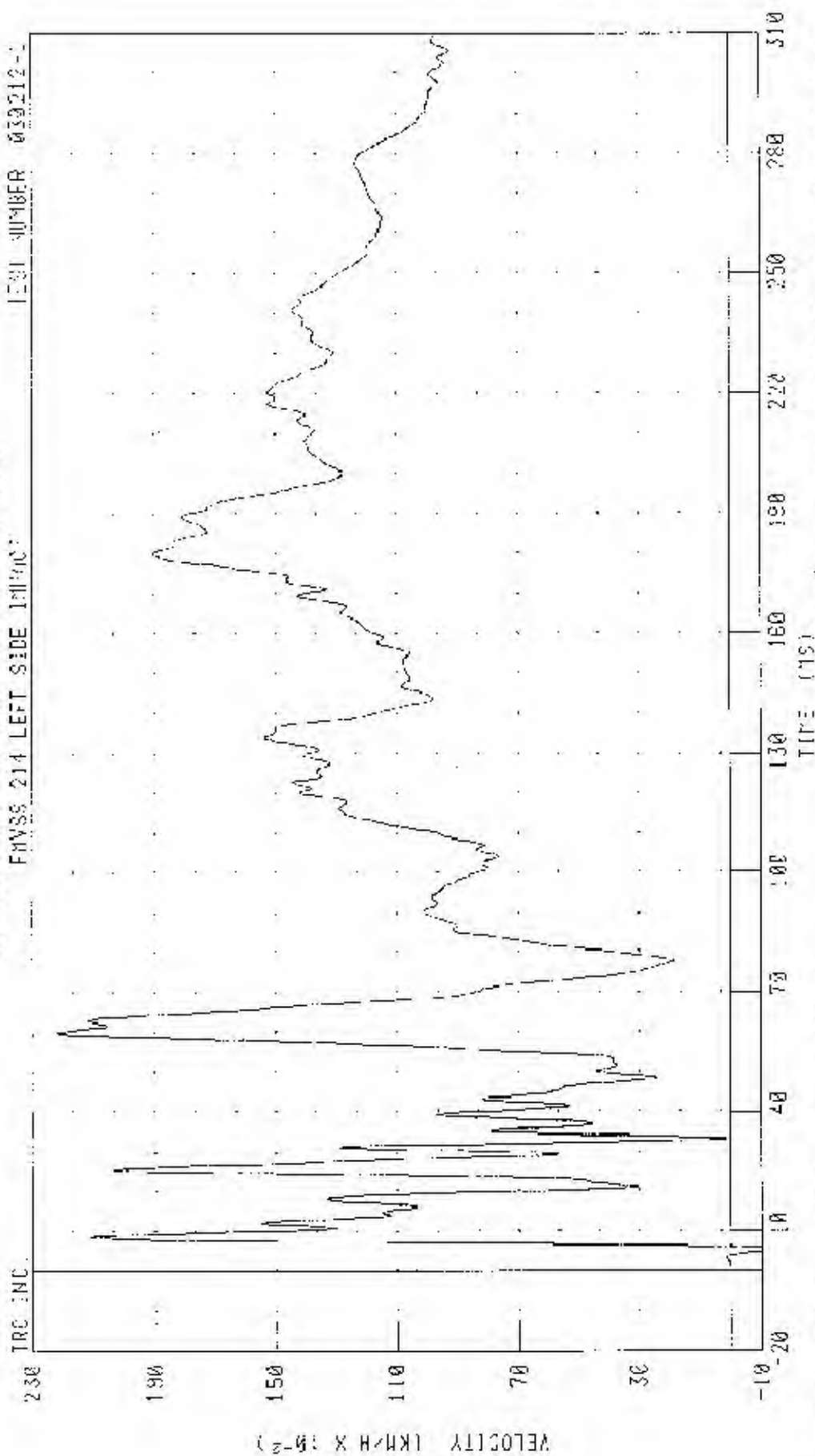
TIME (MS)

48:24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE FRONTIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

VEHICLE CENTER OF GRAVITY Z-AXIS VELOCITY

FRVSS 214 LEFT SIDE IMPACT

TEST NUMBER 030212-1

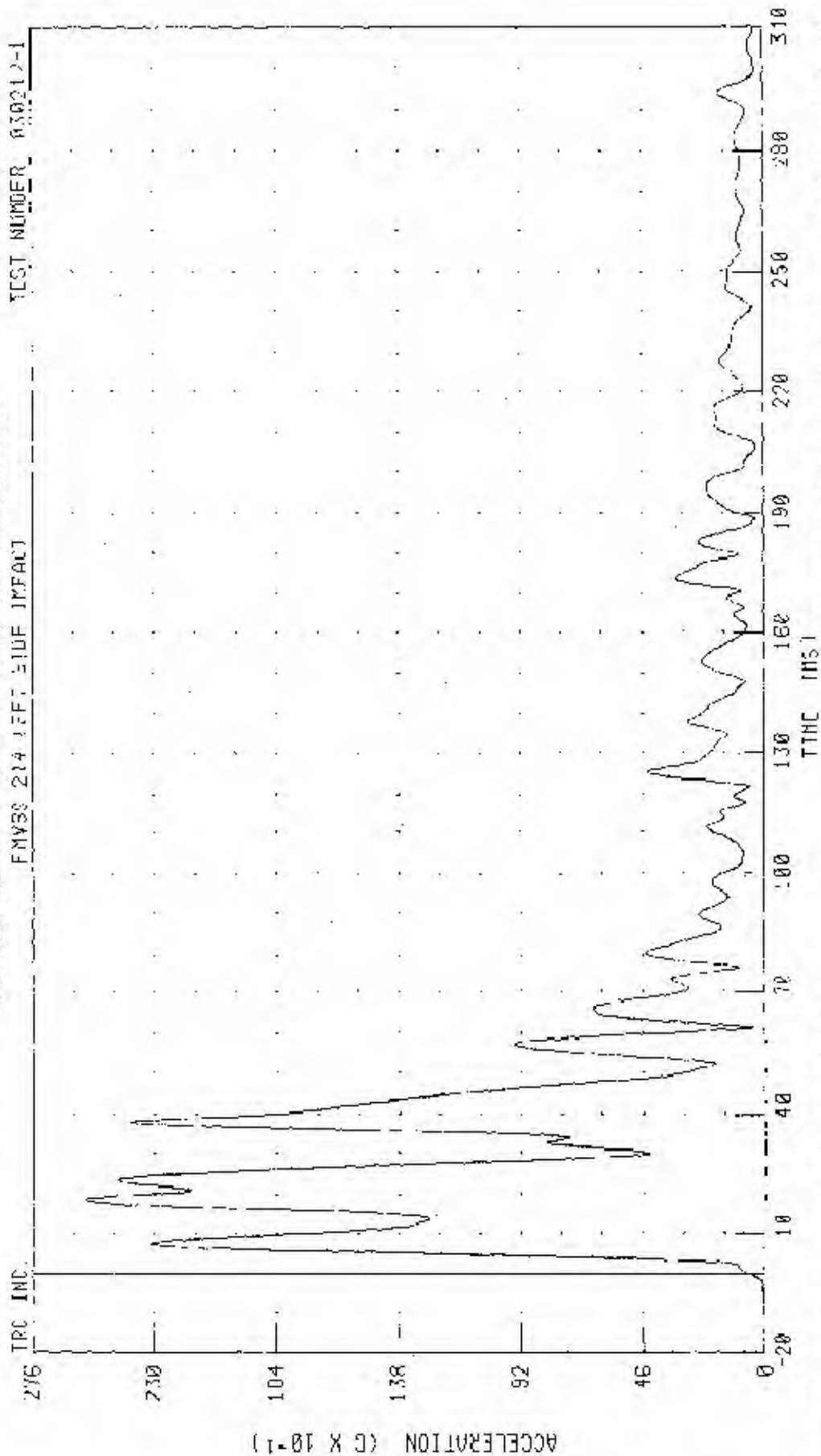


CHANNEL: V007V1

FILTER: CH CLASS 180

PEAK DATA: 7.22 KPH @ 58.92 MS; -6.16 KPH @ 5.36 MS

48/24 KPH 90 DEGREE STIFF IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S
VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION



PEAK DATA: 23 58 G 18 88 MS, 0 00 G 15 60 MS

CHANNEL 00001 FILTER CH. CLASS 50

MDB Instrumentation Plots

Acceleration Data - Filter Class 60

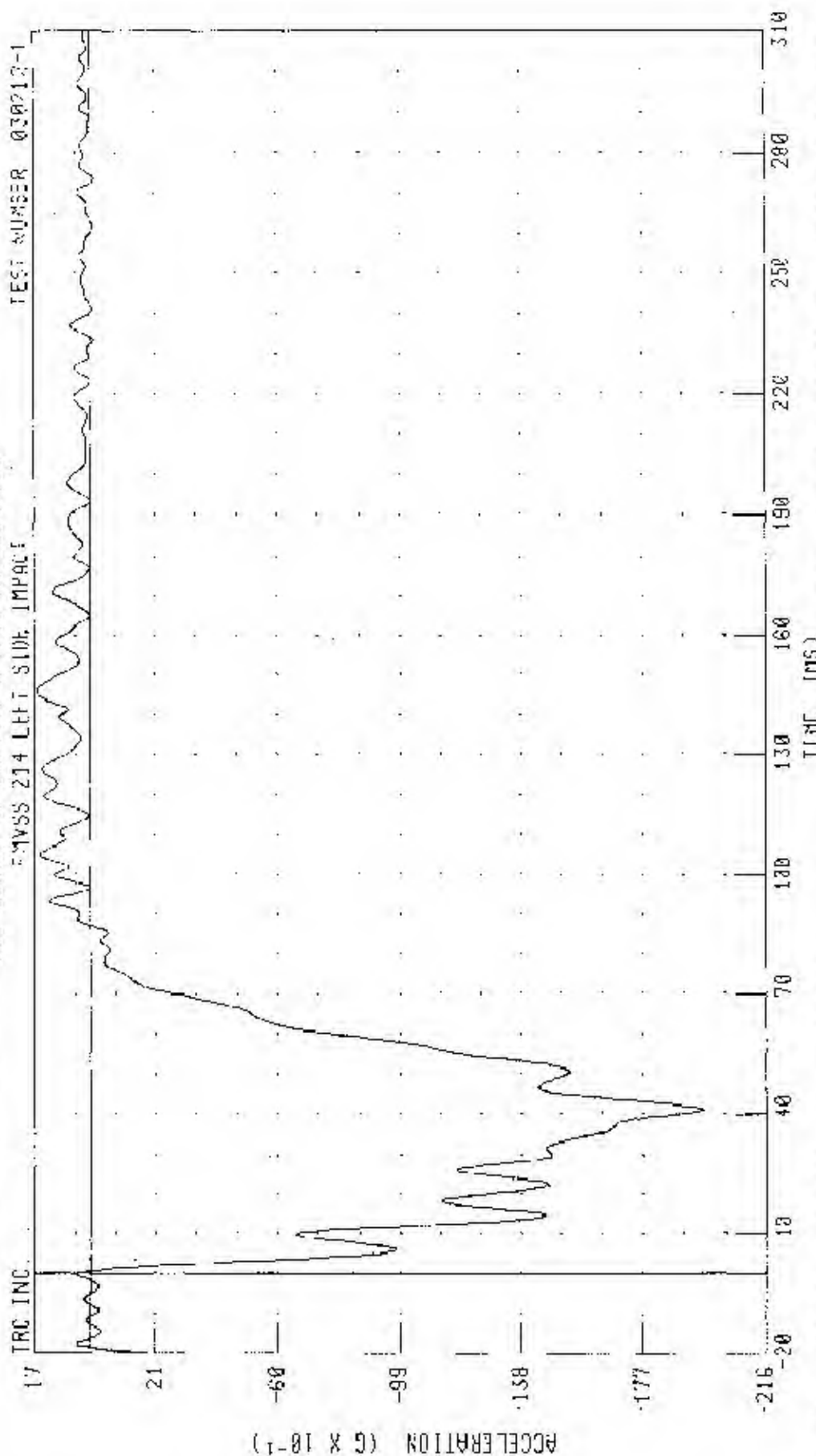
Integration Data - Filter Class 180

40/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE (F 2003 M020A PR0114CE 5

NO8 CENTER OF GRAVITY X-AXIS ACCELERATION

TRC INC.

TEST NUMBER 030212-1



PEAK DATA: 1 72 G 3 146 40 MS; -19 58 G 0 41 20 MS

CHANNEL: BCCXG1 FILTER: CH. CLASS: 50

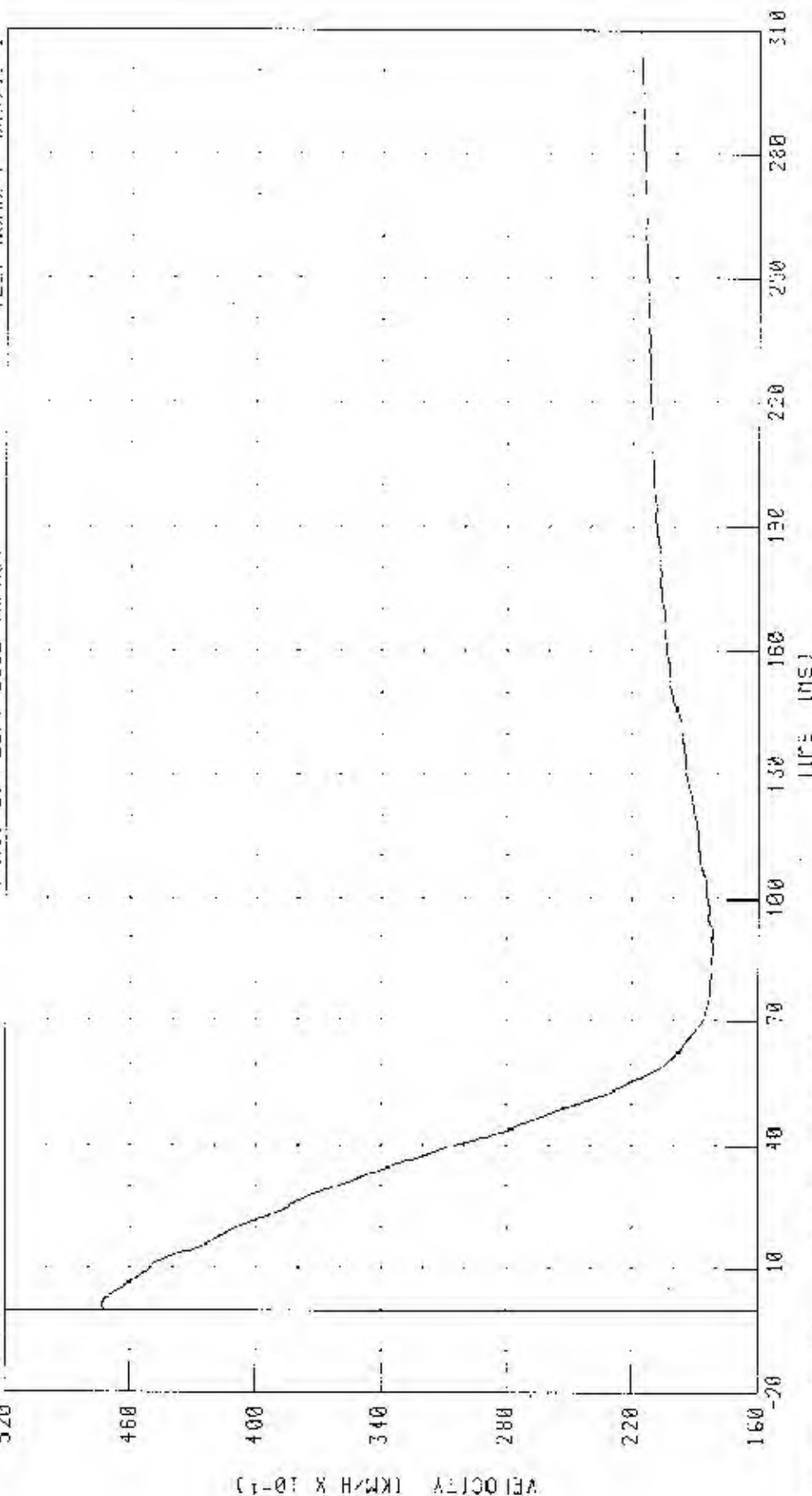
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA RX700E S

FOR CENTER OF GRAVITY X-AXIS VELOCITY

IRC INC.

CHASS 214 LEFT SIDE IMPACT

TEST NUMBER 030212-1

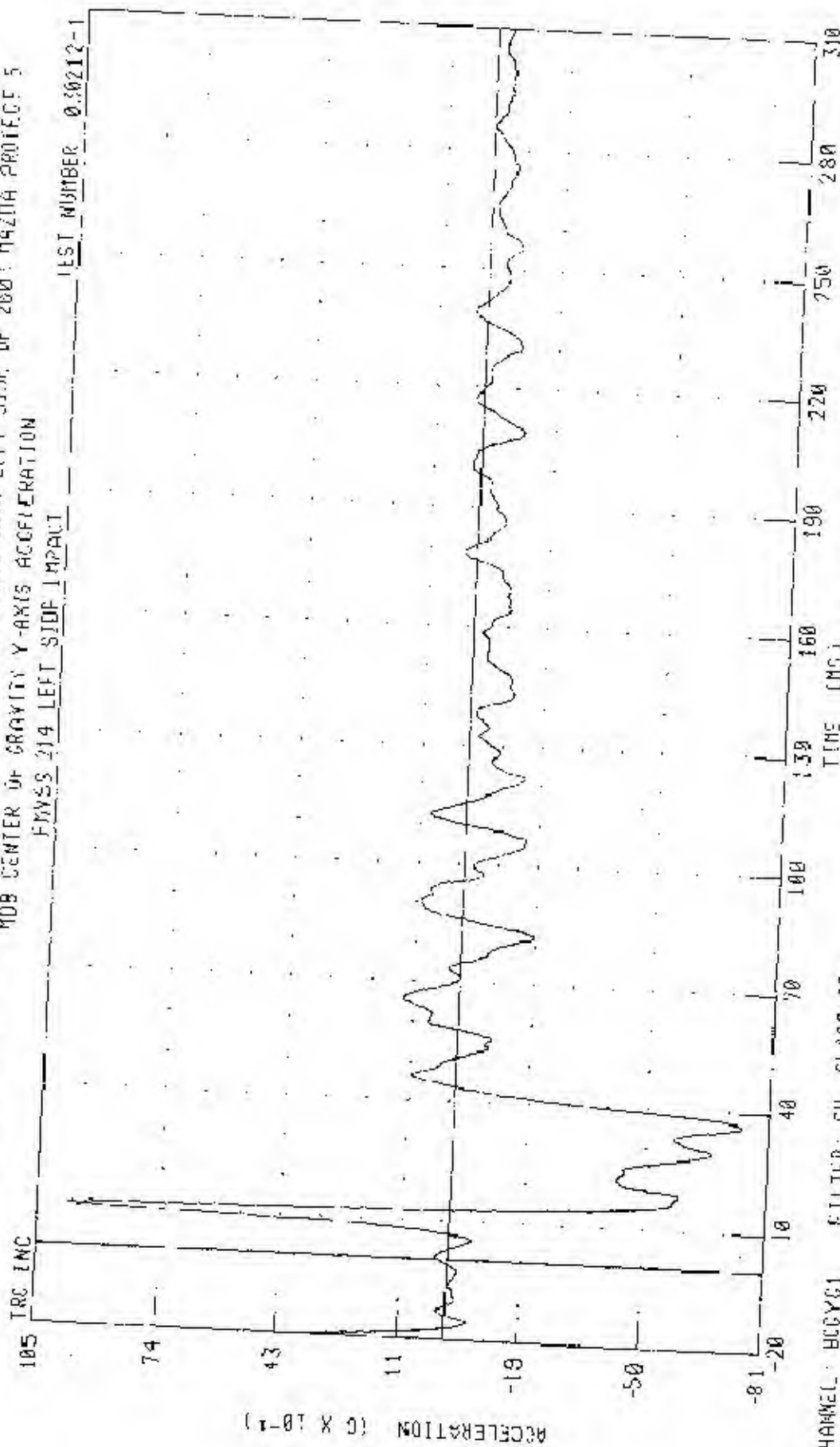


CHANNEL BCCXY1 13114 CH CLASS 188

PEAK DATA 47.30 KM/H @ 152.15; 19.06 K1/V1 3 97.44 MS

18/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2007 MAZDA PROTECT 5
 MOB CENTER OF GRAVITY Y-AXIS ACCELERATION
 FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER 030212-1



CHANNEL: BODYG1 FILTER: CH CLASS: 80

PEAK DATA 9.73 G @ 11.12 MS; -7.47 G @ 35.48 MS

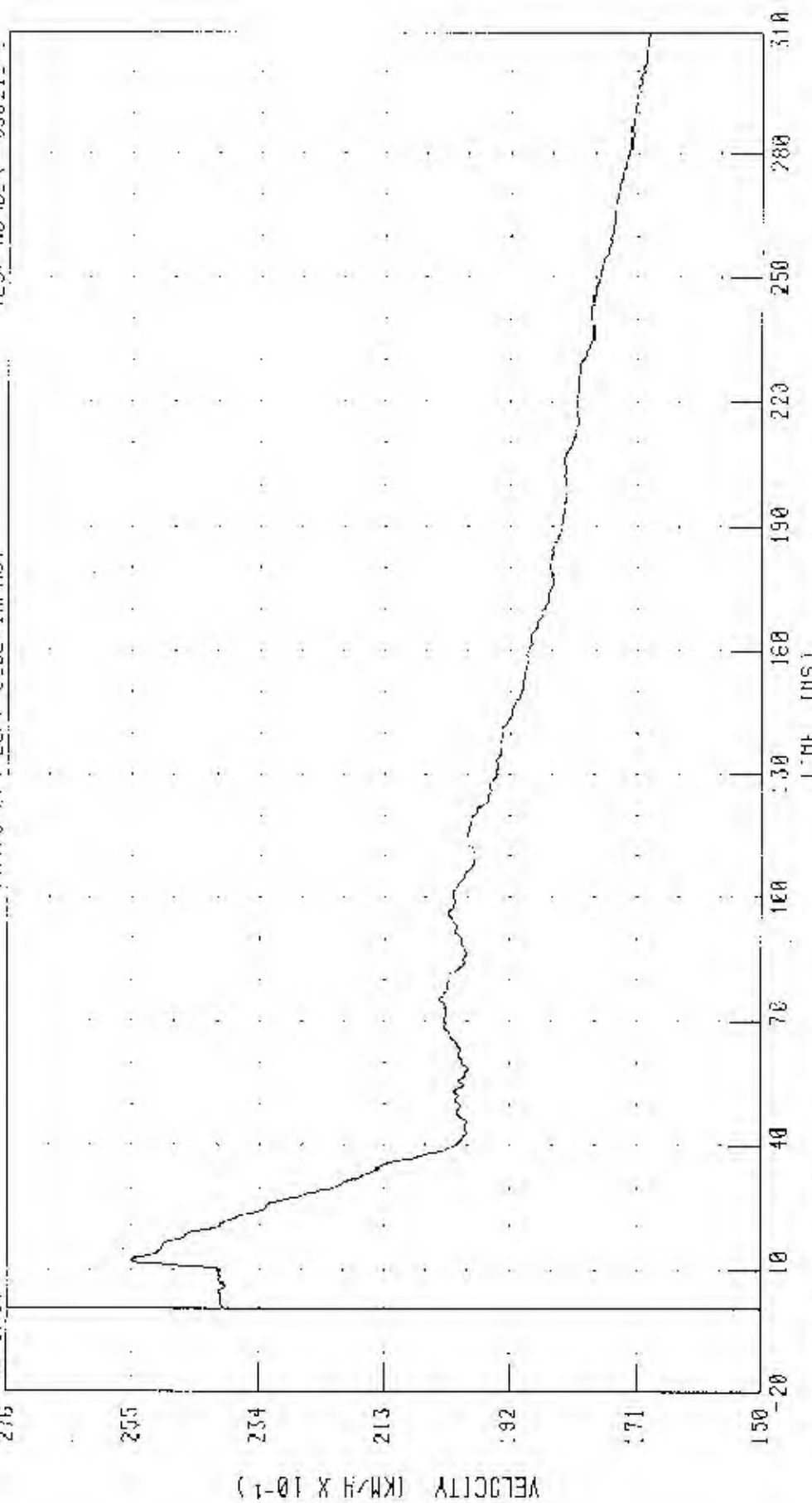
18/24 KPH 90 DEGREE SIDE IMPACT (MOVING IMPERMEABLE BARRIER) INTO LEFT SIDE OF 20KX 04/204 PROTEGE 5

POS CENTER OF GRAVITY Y-AXIS VELOCITY

RC INC

FNVS 214 LEFT SIDE IMPACT

TEST NUMBER 030212-1



CHANNEL 000YV1

FILTER - CH CLASS 130

TIME (MS)

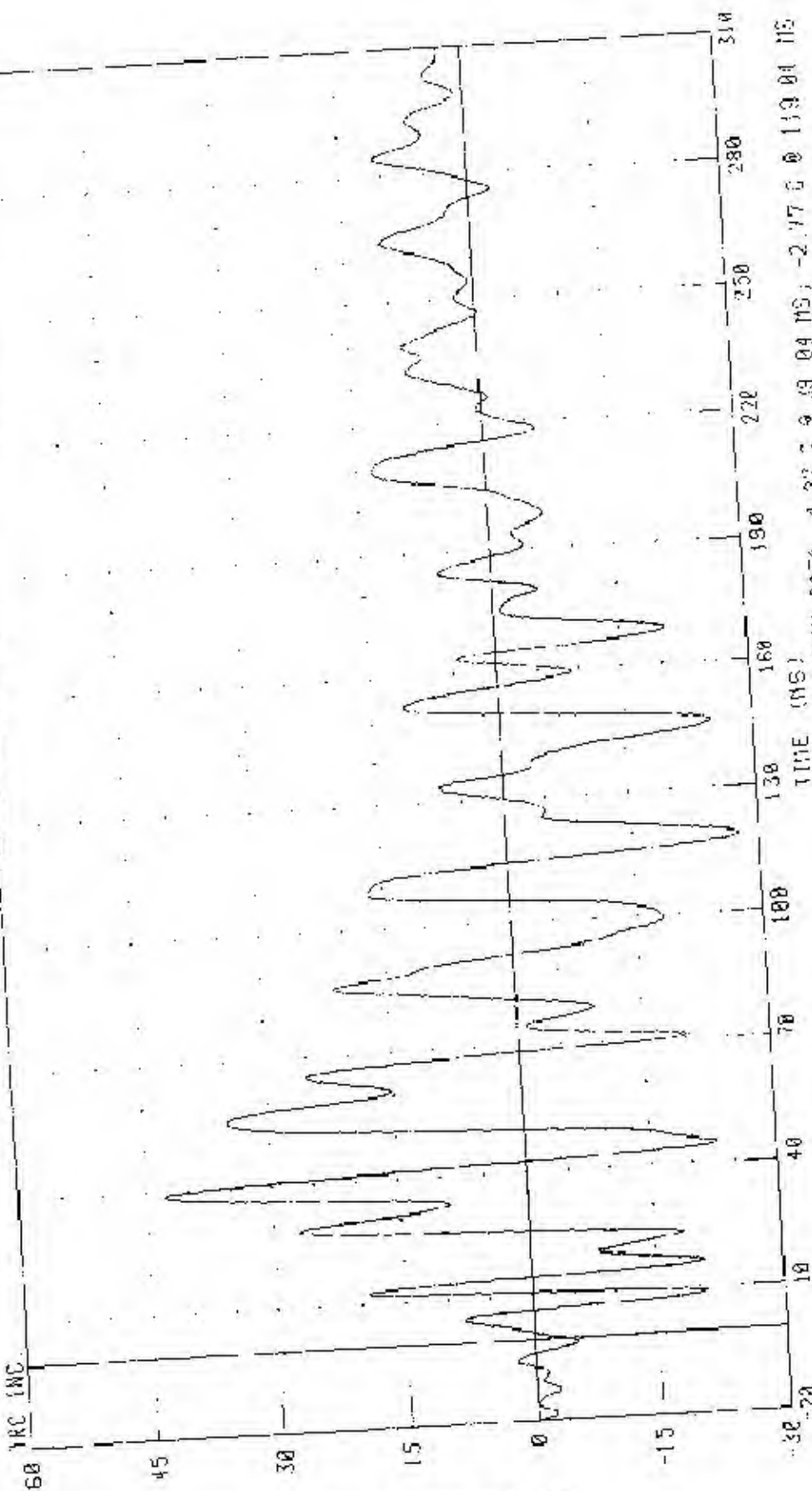
PLAK DATA 25 50 KM/H @ 12 56 MS; 16.87 KM/H @ 310.00 MS

48/24 KPH 90 DEGREE SIDE IMPACT INVOLVING DEFORMABLE BARRIER) INTO LEFT SLUE OF 2003 MAZDA PRO-ECG 5

MOB CENTER OF GRAVITY Z-AXIS ACCELERATION

TEST NUMBER: 030212-1

FMVSS 224 LEFT SIDE IMPACT



PEAK DATA 4 27 2 9 49 04 MS; -2.17 G @ 119.04 MS

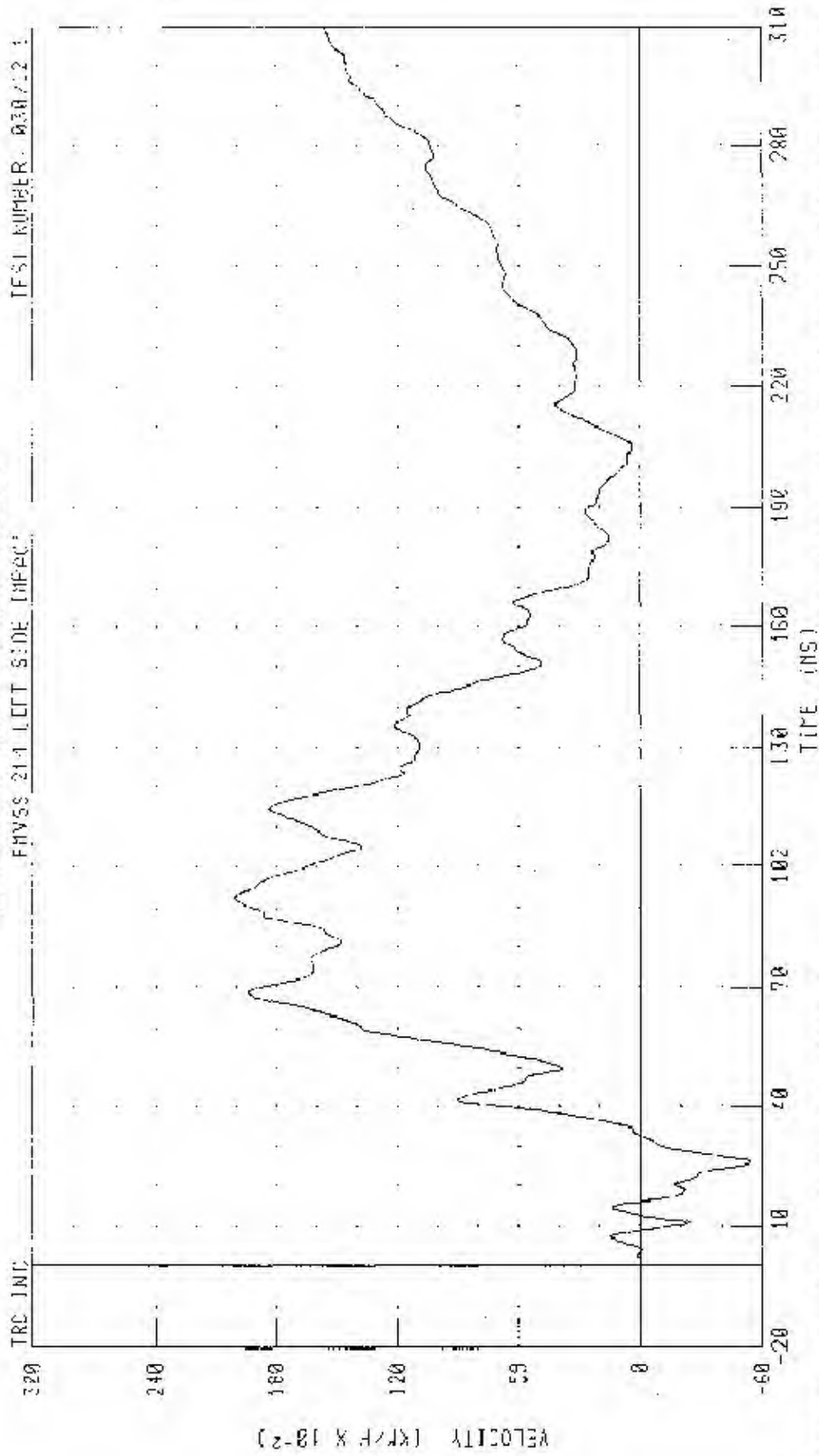
CHANNEL: BCCZG1 FILTER: CH CLASS: 00

030212-1

B-112

48/24 KPH 90 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2003 WZDA PROJECT 5.

108 CENTER OF GRAVITY Z-AXIS VELOCITY



PEAK DATA 2 01 KPH @ 92 72 MS, -0 54 KPH @ 25 84 MS

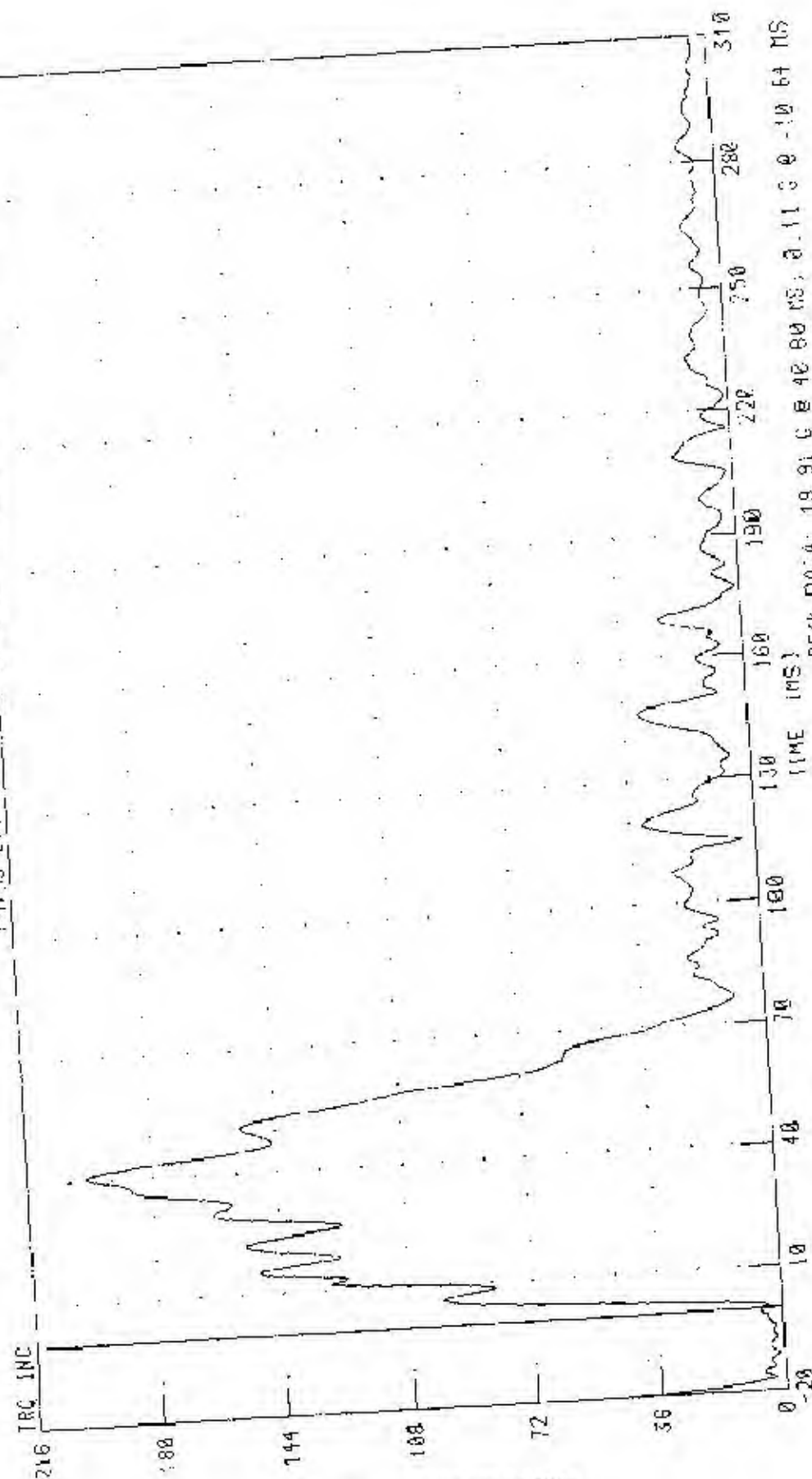
CHANNEL: BCS2V1 FILTER: CH. CLASS 180

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2403 DATA PROTECTOR

MOB CENTER OF GRAVITY RESOLUTION ACCELERATION

TEST NUMBER 030212-1

FMVSS 214 LEFT SIDE IMPACT



PEAK DATA: 19.91 G @ 40.80 MS, 0.11 G @ 10.64 MS

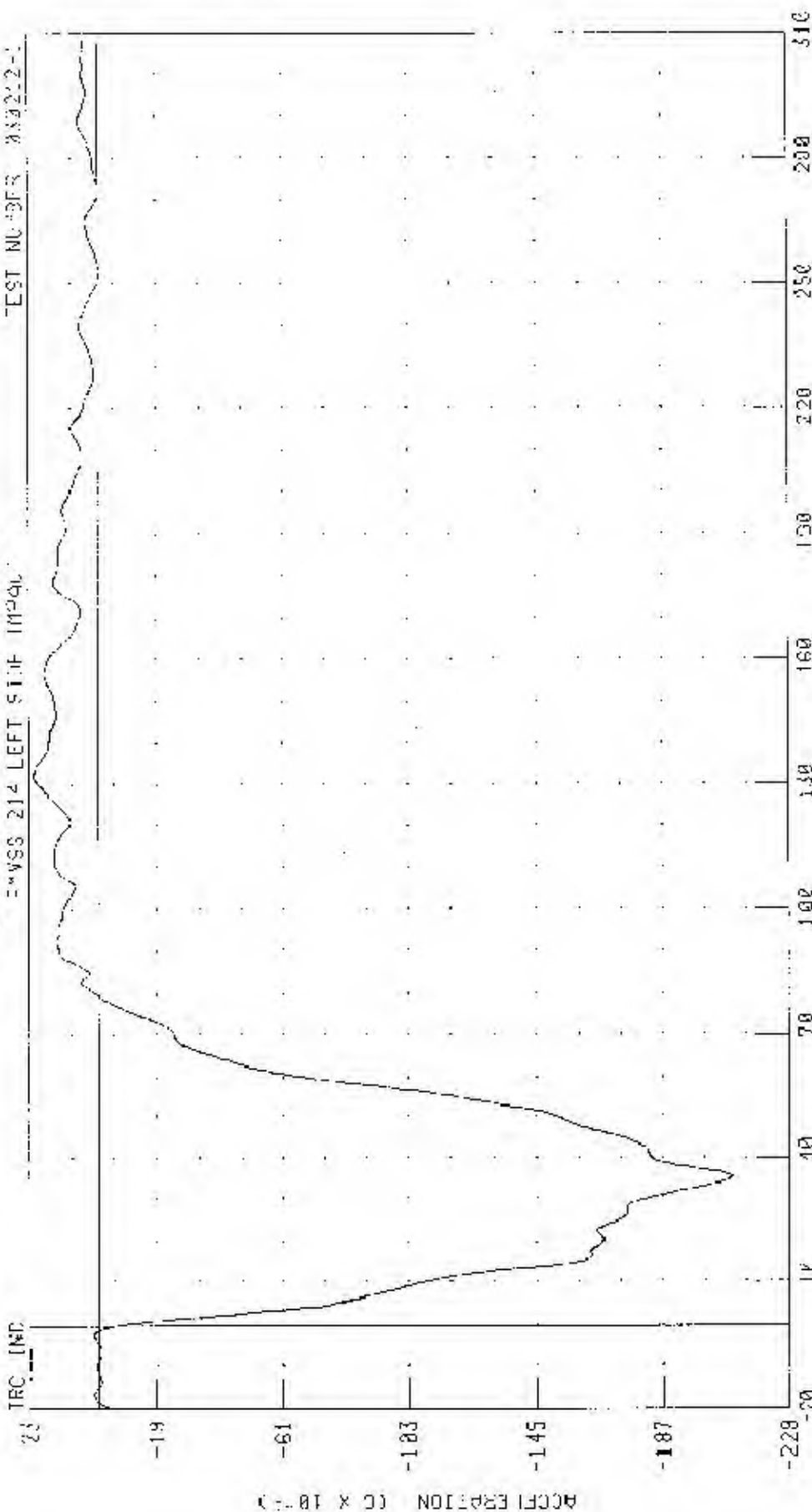
CHANNEL: BDCRG1 FILTER: CH DNSS: 60

48/24 KPH 30 DEGREE SIDE IMPACT (MOVING OFFSHORE BARRIER) INTO LEFT SIDE OF 2003 HP704 PROJECT 5

100 LEFT REAR X-AXIS ACCELERATION

TEST NO: 303 303222-1

TRC IND



TIME (MS)

PEAK DATA: 218.6 @ 132.24 MS, -21.81 G @ 15.28 MS

CHANNEL: LRRXG1 FILTER: CH CLASS: 60

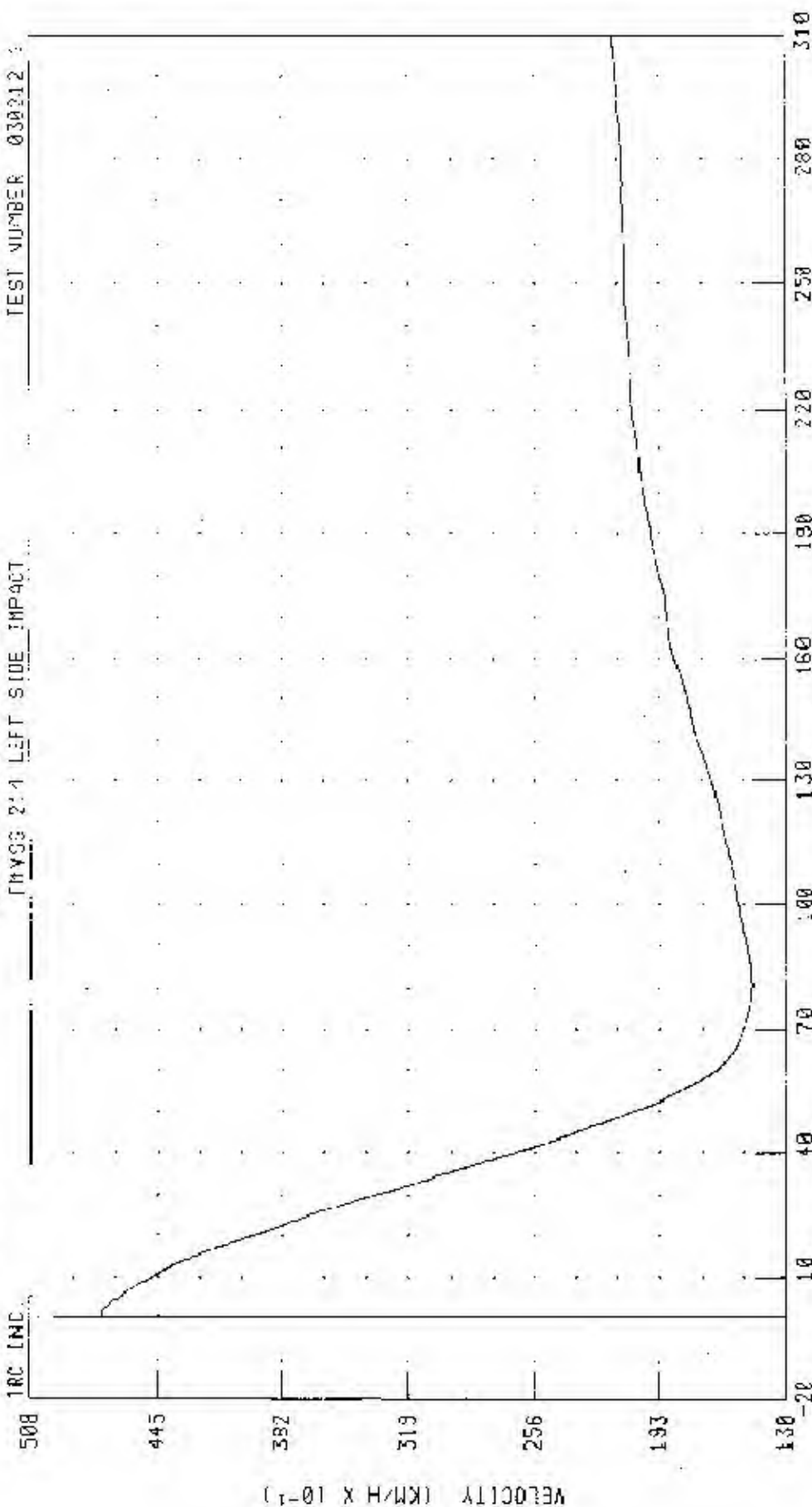
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

M08 LEFT REAR X AXIS VELOCITY

TEST NUMBER 030212-1

PHYS 214 LEFT SIDE IMPACT

100 INCH



TIME (MS)

PEAK DATA: 47.20 KN/H @ 1.04 MS; 14.60 KN/H @ 01.04 MS

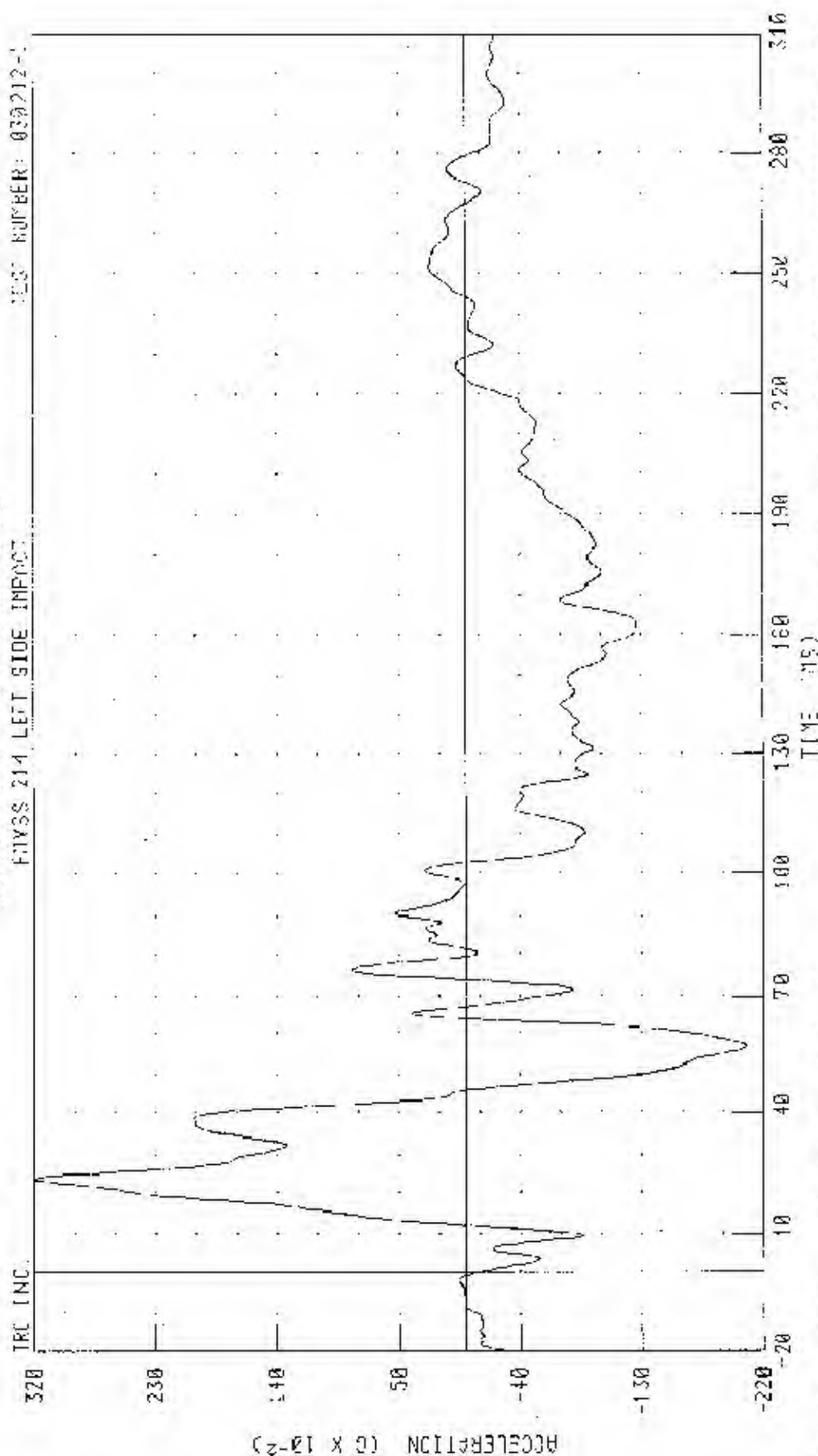
CHANNEL: LRRXV1 FILTER: CH CLASS 1B0

10/24 2PM 30 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTRUD 5

NDS LEFT REAR Y AXIS ACCELERATION

RVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



CHANNEL: (FRY6) FILTR: CH. CLASS: 60

PEAK DATA: 5.19 U @ 23.78 MS. -7.07 U @ 5E 24.71

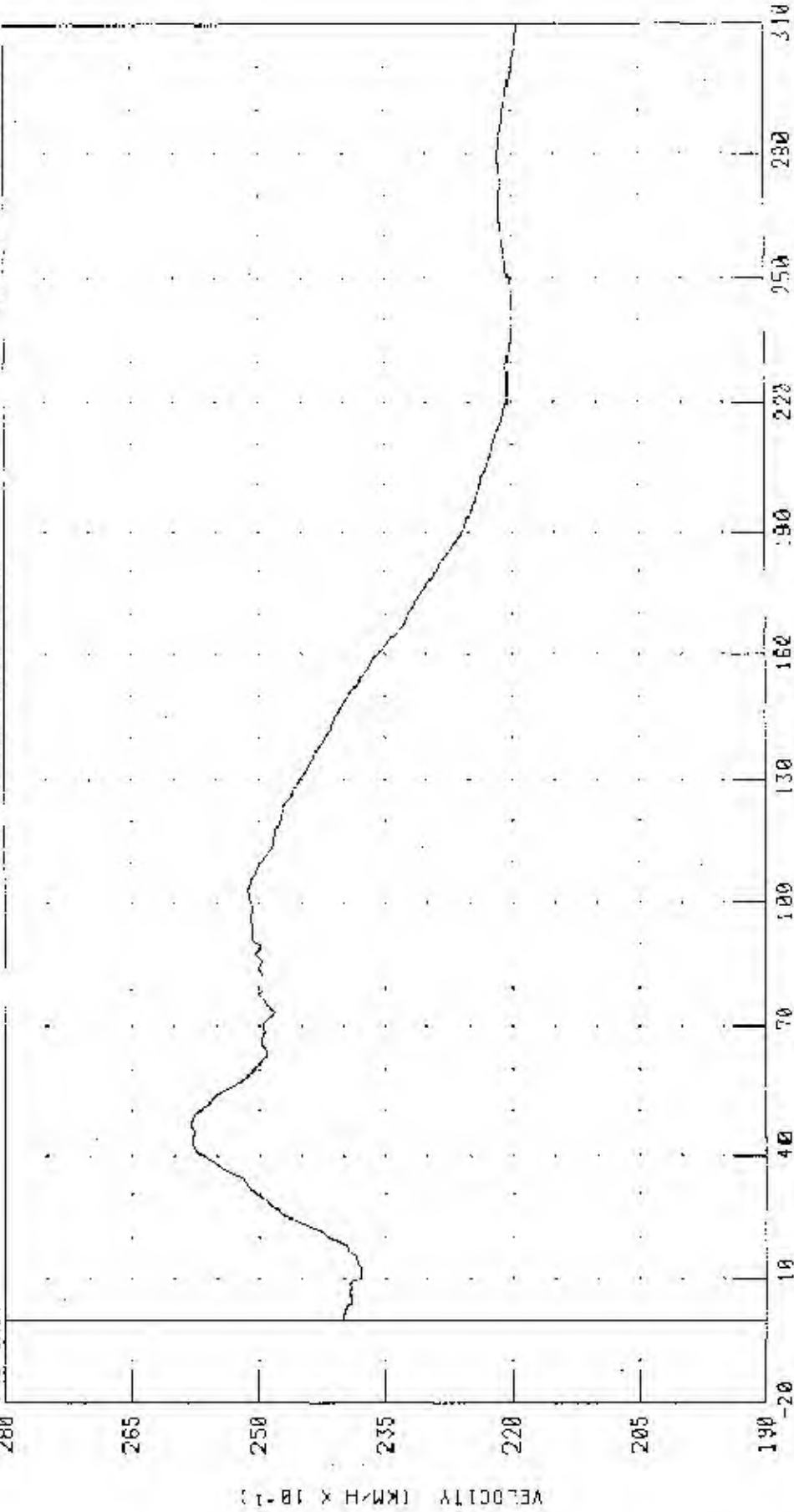
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 NORTON BRIGADE 5

100 LEFT REAR Y-AXIS VELOCITY

PHASE 2/4 LEFT SIDE IMPACT

TRC INC.

TEST NUMBER: 030212-1



TIME (MS)

FLAK DATA: 25.80 KM/H @ 46.50 MS, 21.02 KM/H @ 310.00 MS

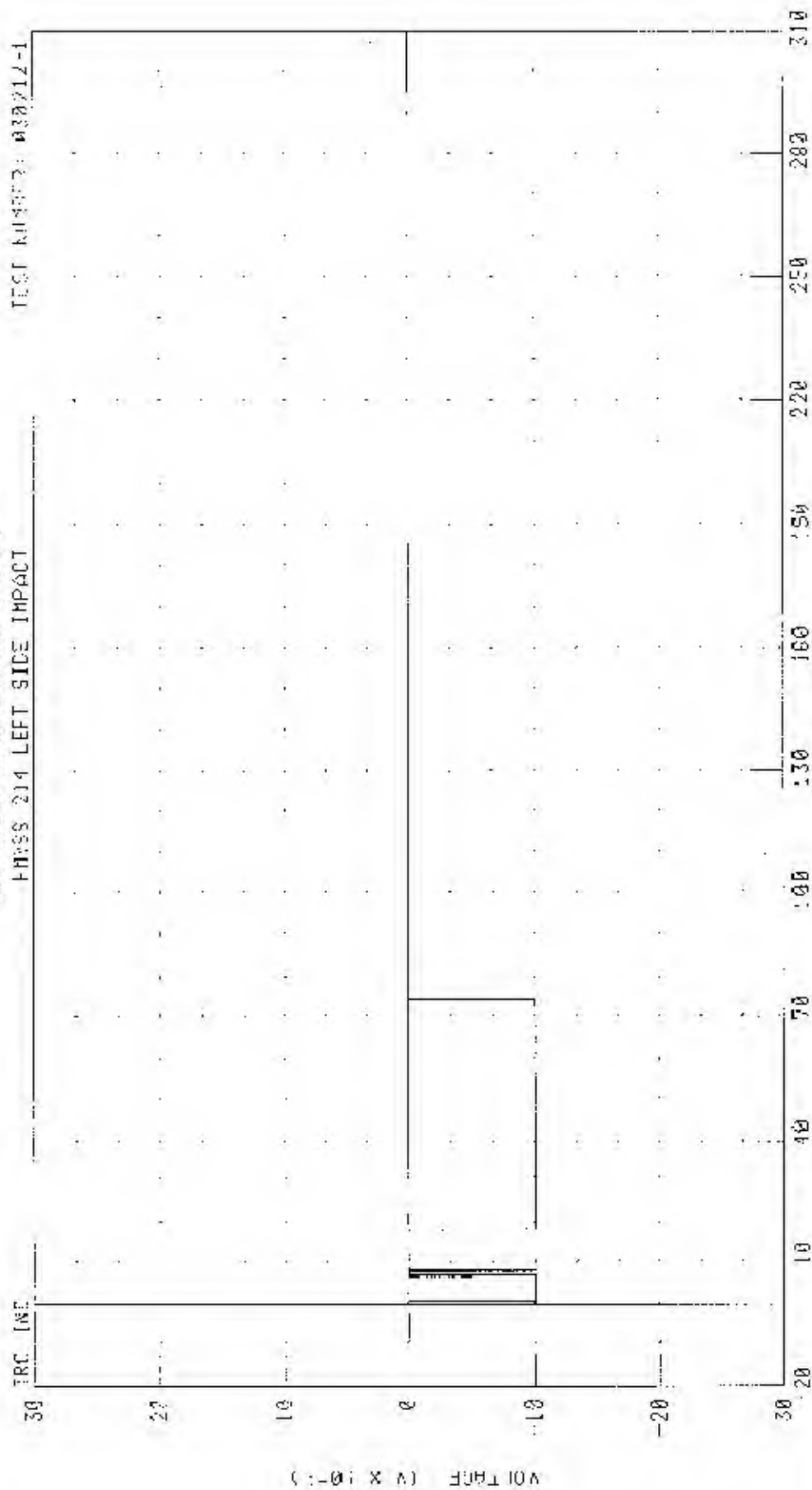
STATION: LRRYV1 FILTER: CH. CLASS 130

48/24 KP- 90 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2202 M7PA PROTEGE 5

1103 RIGHT SIDE CONTACT SWITCH

PISS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



CHANNEL: MDAR1

FILTER: CII CLASS 1000

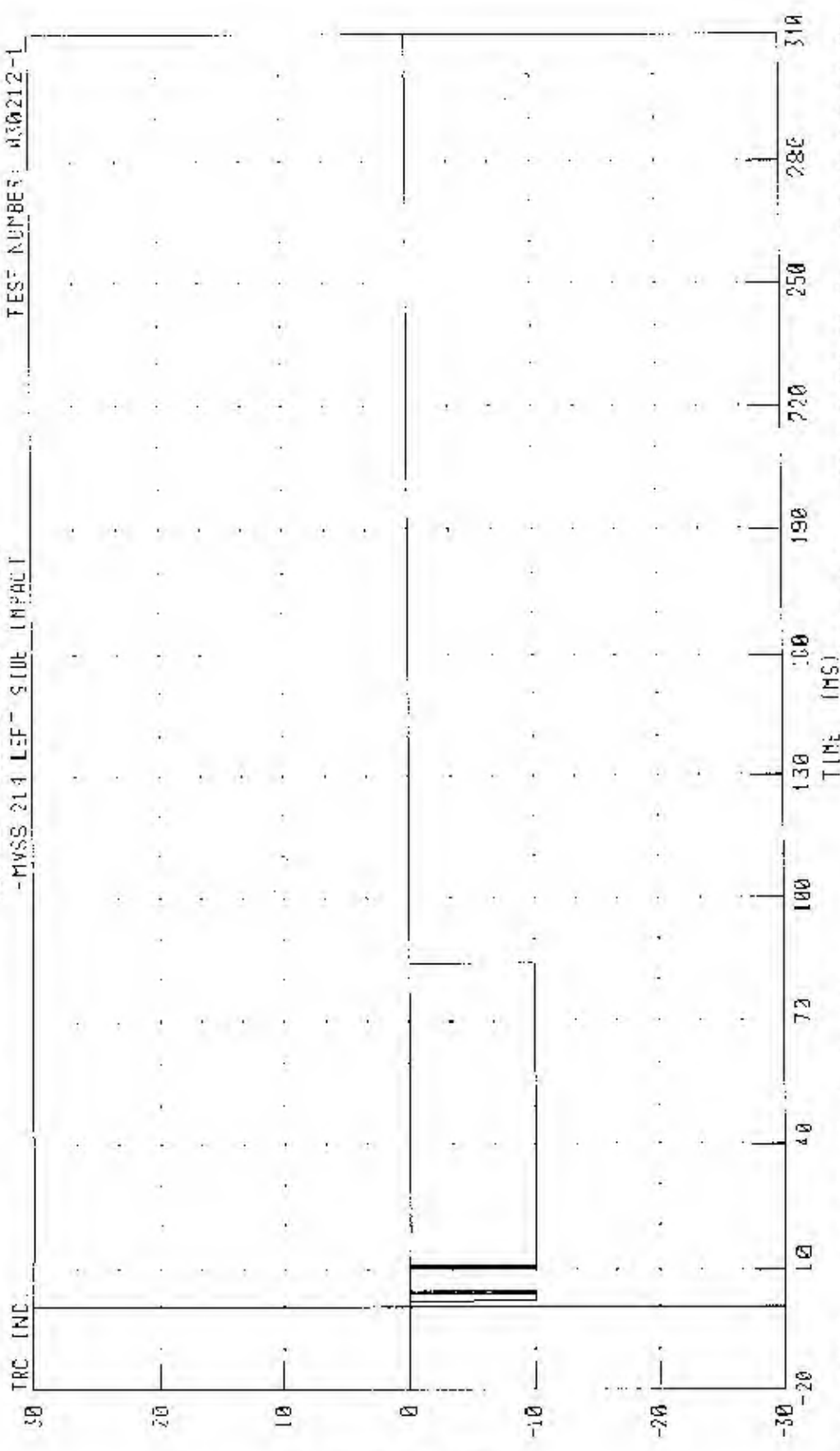
TIME (MS)

2440 DATA 0 00 V 0 310 00 MS, 1.00 V 0 0.00 MS

18/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 Y470A PROJECT 5

NDB LEFT SIDE CONTACT SWITCH
-MVSS 214 LEFT SIDE IMPACT

TEST NUMBER: K30212-1



PEAK DETECT: 0.00 V @ 310.00 MS, -1.03 V @ 144.13

CHANNEL: NDB-L1 FILTER: CH CLASS 1000

Driver and Passenger Dummy Instrumentation Plots
Acceleration Data - FIR Filtered

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFURNABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

DRIVER UPPER RIB Y AXIS ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 010212-1

52 IRC INC.

40

28

16

4

-8

-20

ACCELERATION (G)

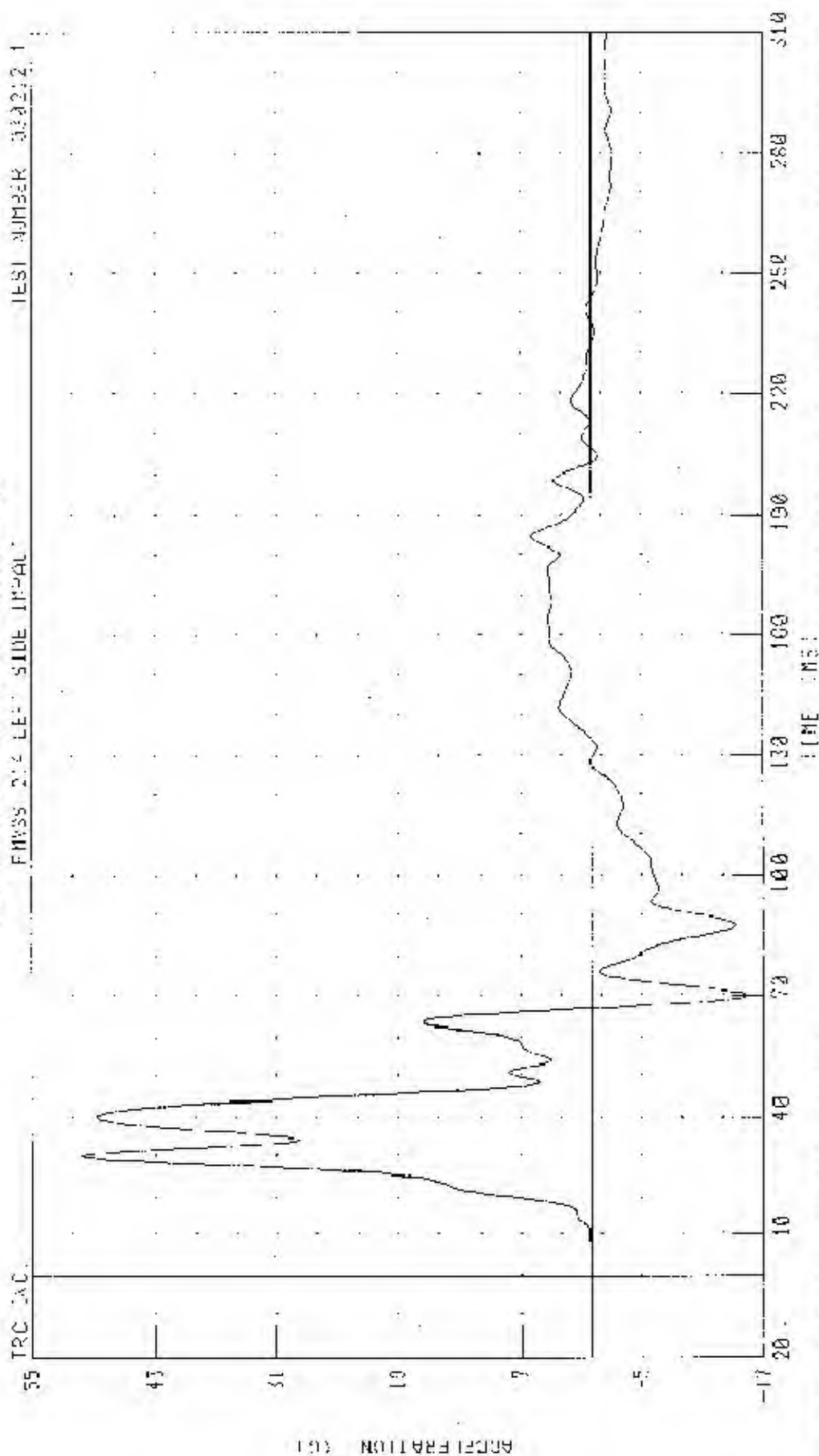
310 200 250 220 190 180 150 130 100 70 40 10

TIME (MS)

CHANNEL: LURVCI FILTER: FIR 100

PEAK DATA: 51.91 3 8 35 64 13, -18.24 0 6 69.39 118

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BAR) INTO LEFT SIDE OF 2003 MAZDA BOUTIQUE 5
 DRIVER LOWER RIB Y-AXIS ACCELERATION



CHANNEL 111111 FILTER 10000

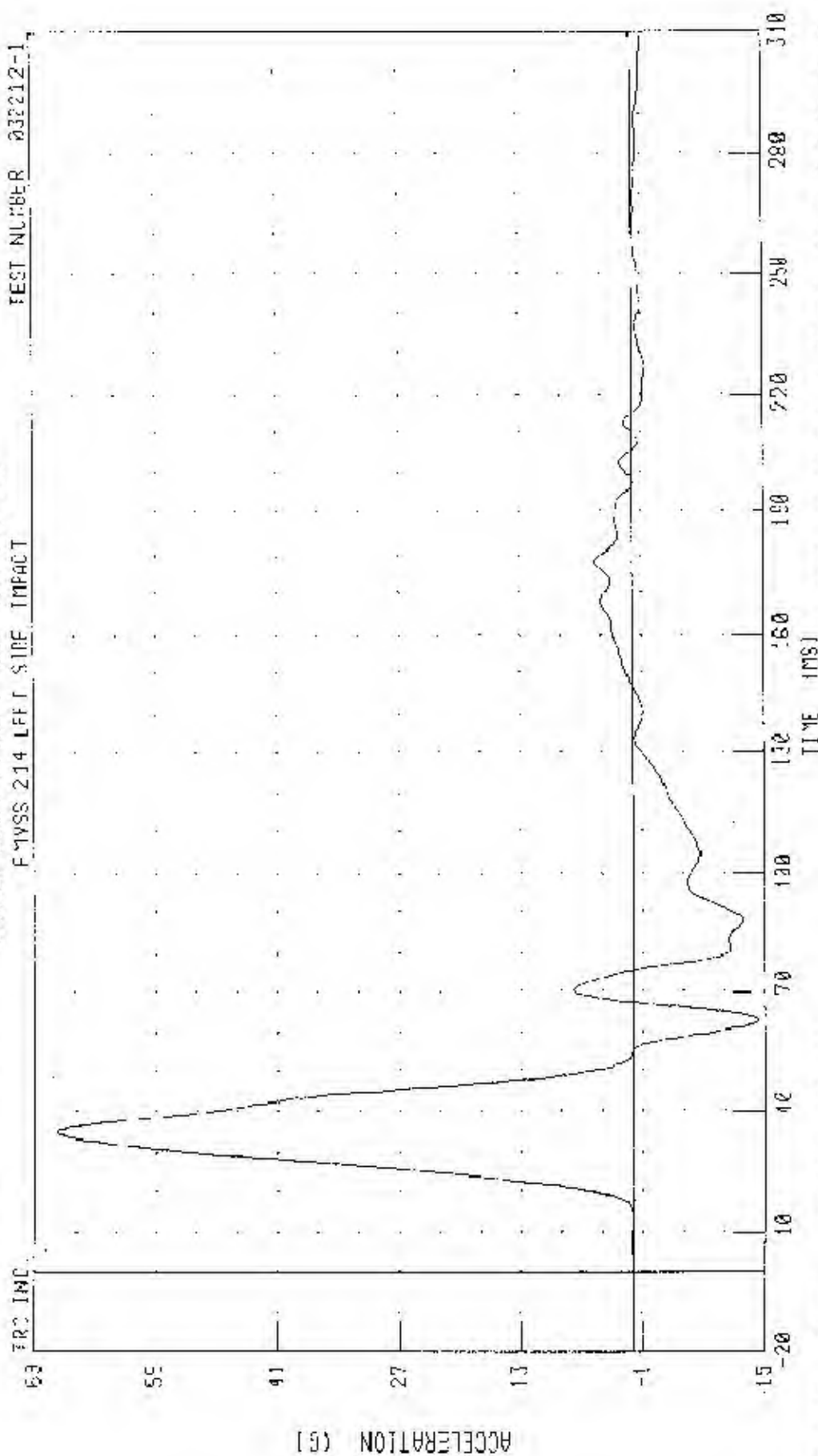
FFR DATA: 50 25 0 30 00 MS 15.47 0 0 70 00 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 YAZDA PROTEGE S

DRIVER LOWER SPINE Y-AXIS ACCELERATION

FWSS 214 LEFT SIDE IMPACT

TEST NUMBER 030212-1



CHANNEL: 112V02 FILTER: FIR 100

PEAK DATA 65.54 G @ 35.00 MS, -14.20 G @ 63.13 MS

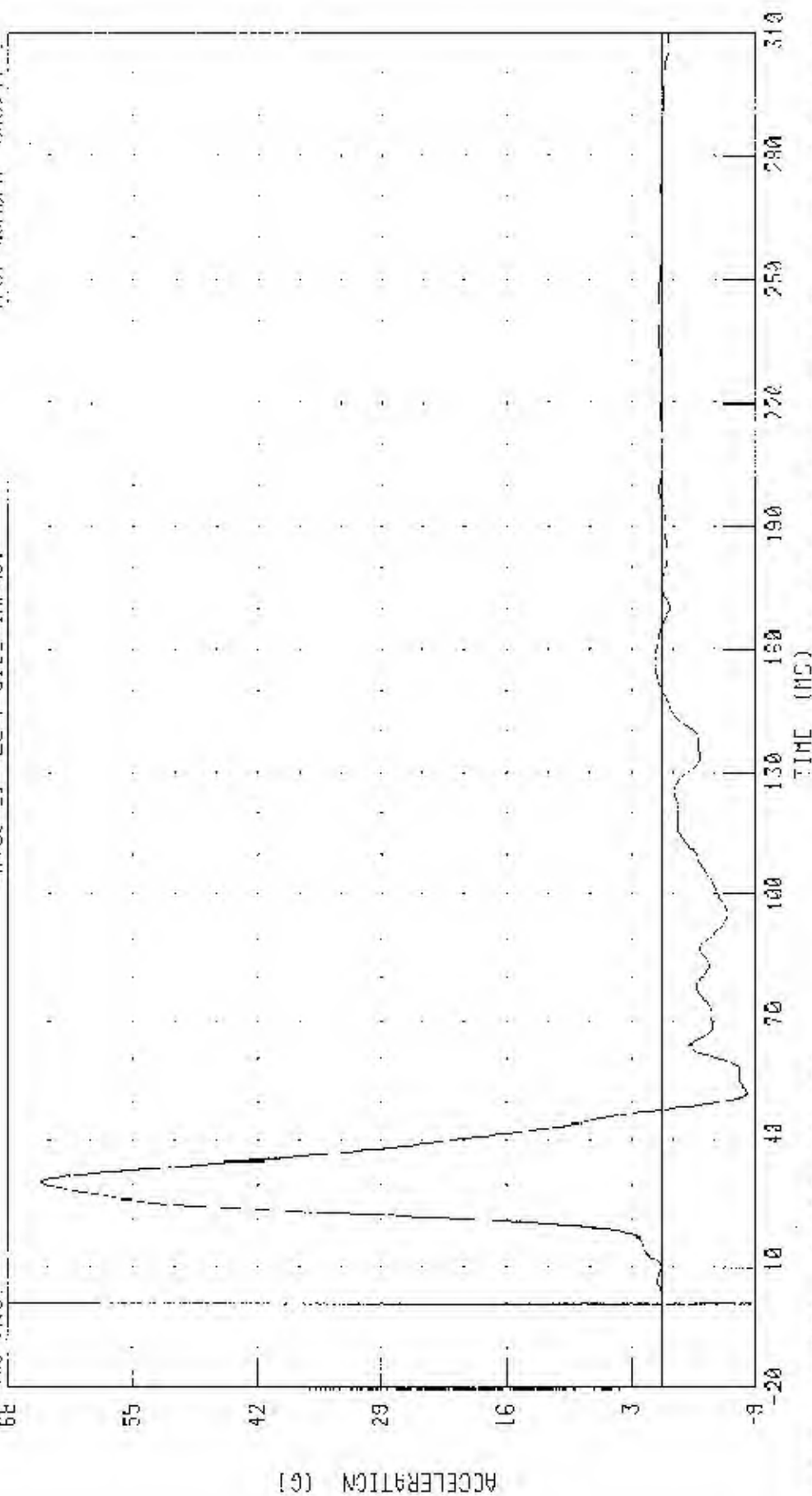
48/24 KPH 30 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 HONDA PROTEGE 5

DRIVER SEAT Y-AXIS ACCELERATION

CHASS 214 LEFT SIDE IMPACT

TRC INC.

TEST NUMBER 030212-1



CHANNEL PEVC1 FILTER FIR 100

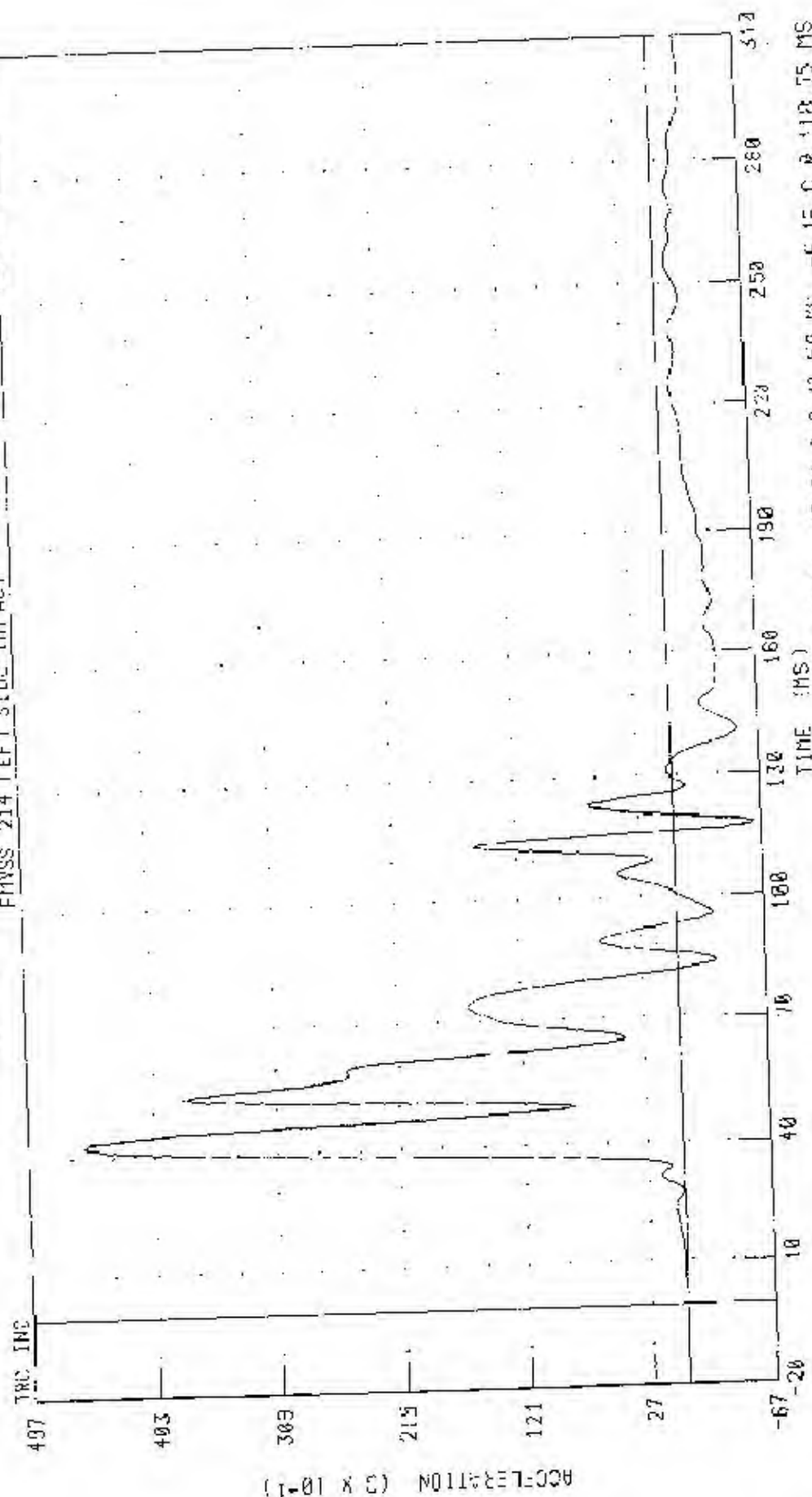
PEAK DATA: 64.45 @ 31.25 MS, 0.05 @ 52.50 MS

48/24 KPII 30 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 NARADA PROTEGE 5

LEFT REAR PASSENGER UPPER RIB Y-AXIS ACCELERATION

TEST NUMBER 030212-1

FMVSS 214 LEFT SIDE IMPACT



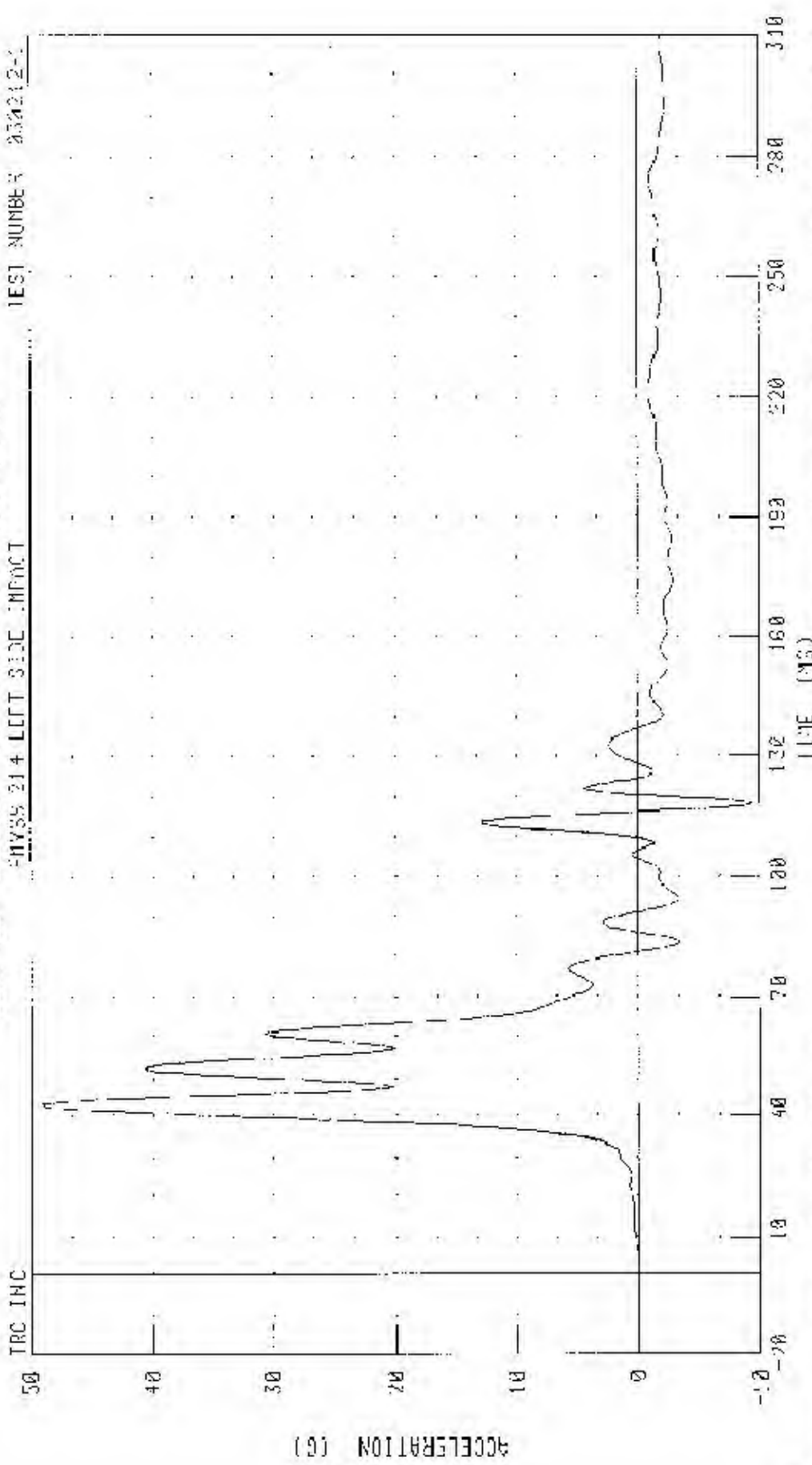
PEAK DATA 45.59 G @ 12.50 MS, -6.16 G @ 118.75 MS

CHANNEL: CURV04 FILTER: FIR100

48/24 1211 30 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF 2000 POUND PROCEDE 5

LEFT REAR PASSENGER LOWER RIB Y-AXIS ACCELERATION

SVSS 214 LEFT SIDE IMPACT TEST NUMBER 030212-1



CHANNEL : LLRYG4 FILTER : FIR 100

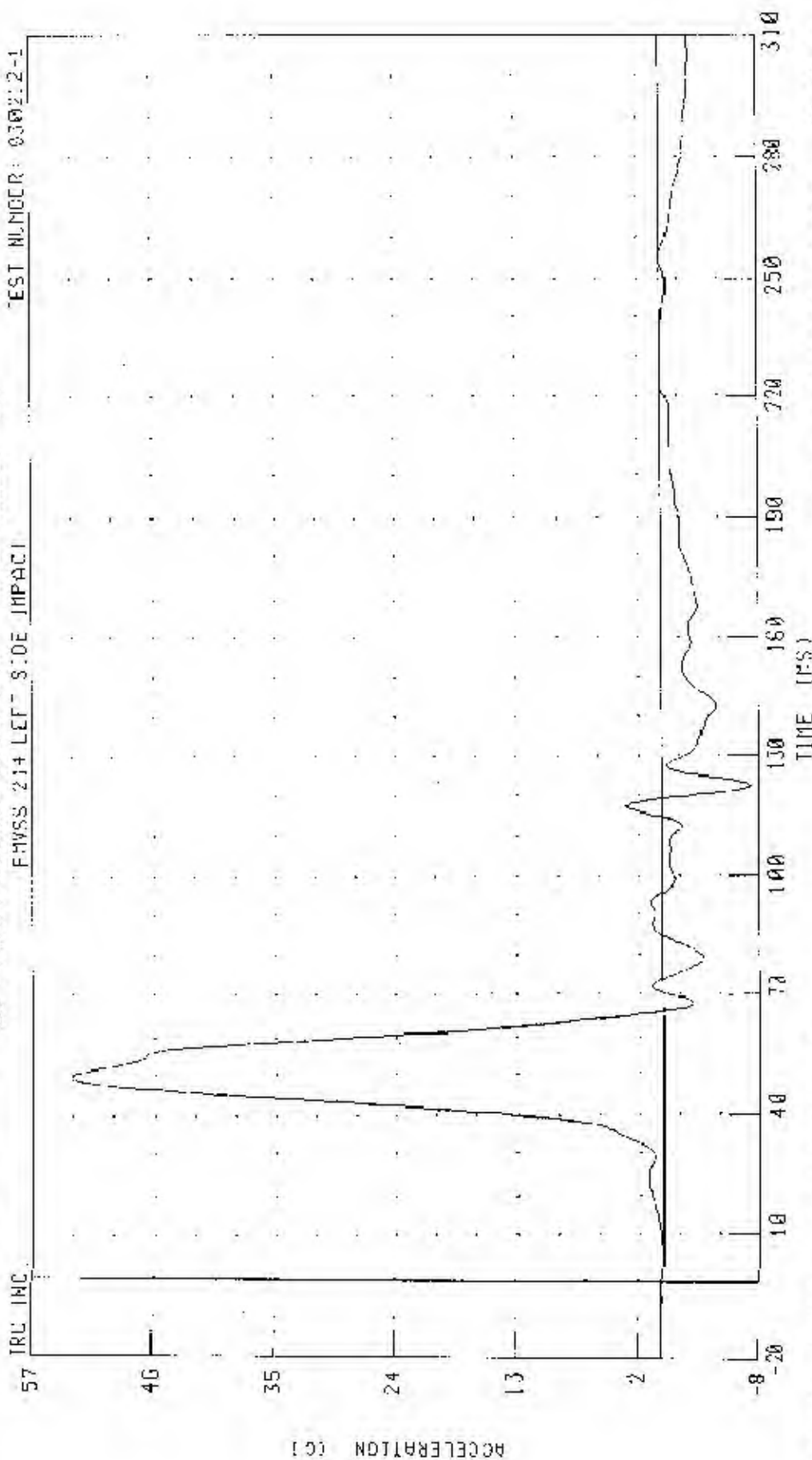
PEAK DATA: 40.00 G @ 43.13 MS; -9.42 G @ 110.13 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

LEFT REAR PASSENGER LOWER SPIKE X-AXIS ACCELERATION

TEST NUMBER: 030212-1

FHVS 214 LEFT SIDE IMPACT



C-CHANNEL 12Y04 FILTER: FIR 100

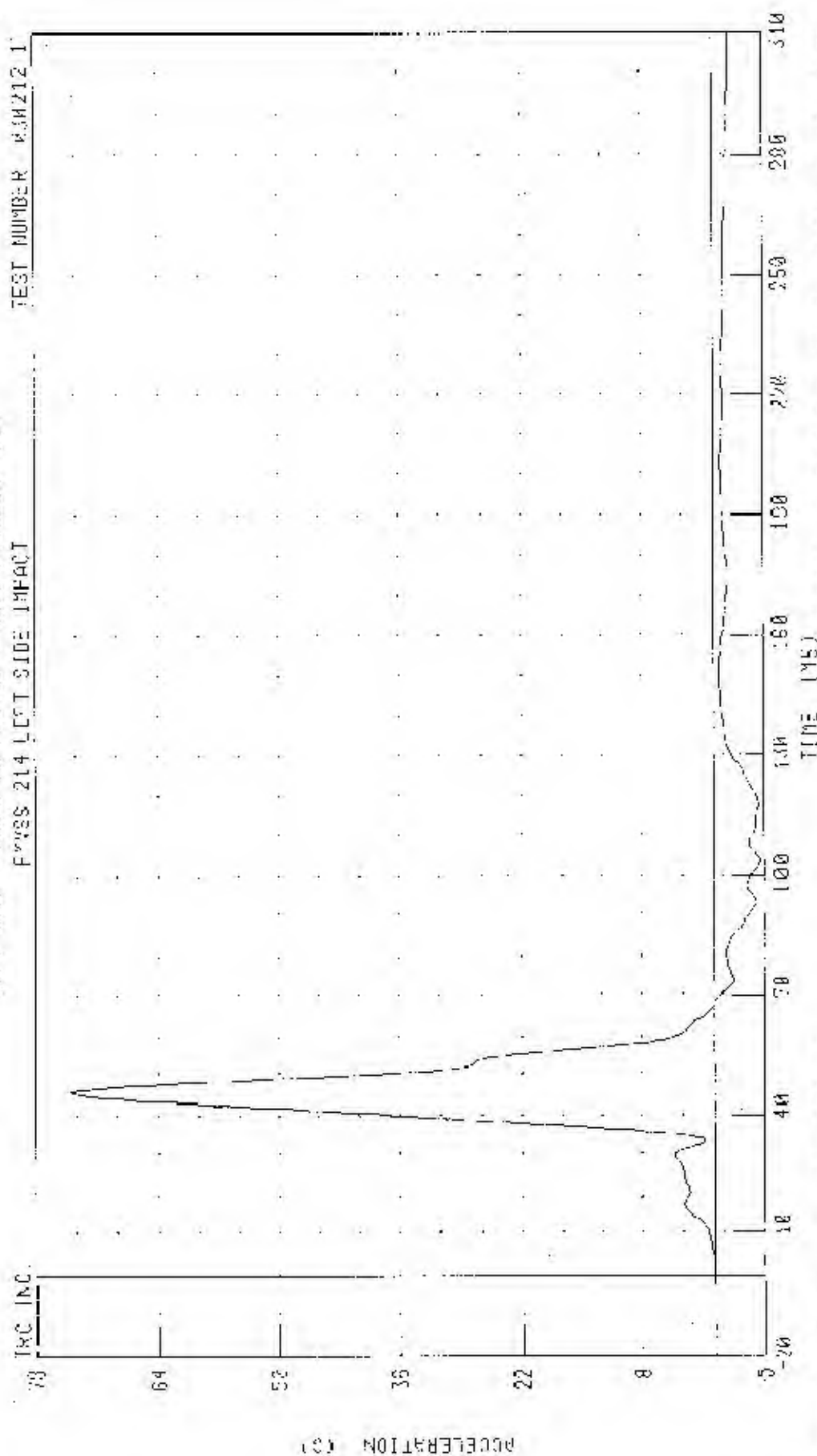
PEAK DATA 53.72 G @ 49.37 MS; -3.23 S @ 122.50 MS

40/24 K-4 50 DEGREE SIDE IMPACT CRUISING DETORMABLE BARRIER; INFO LEFT SIDE OF 2003 MOZDA PROTYPE 5

LEFT REAR PASSENGER PELVIS Y-AXIS ACCELERATION

FWSS 214 LEFT SIDE IMPACT

TEST NUMBER K04212-1



CHANNEL PEY04 FILTER FIR 120

PEAK DATA: 74.03 39.43.62 MS, -5.24 100.13 MS

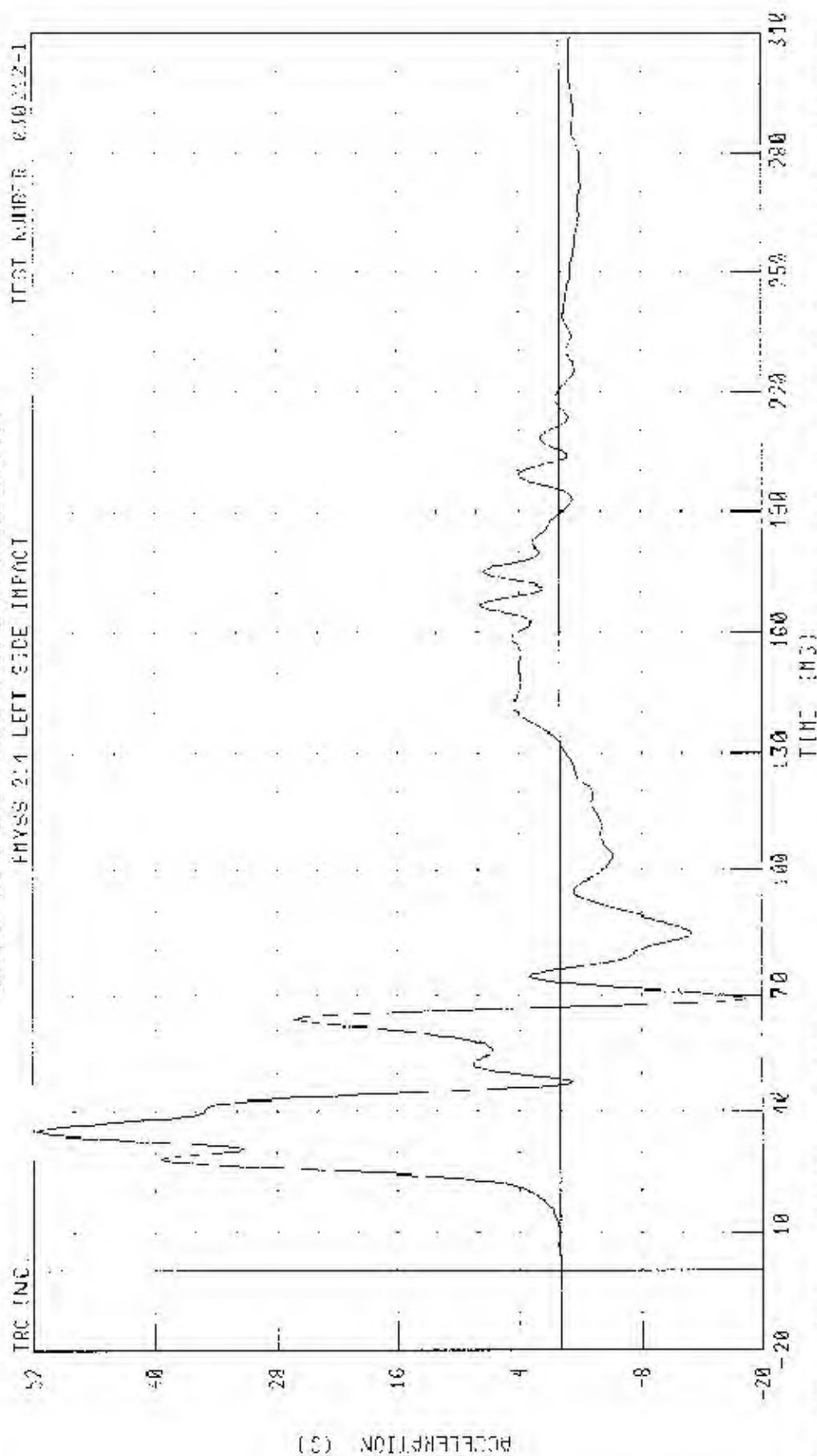
Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - FIR Filtered - Redundant

48.24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2886 MP/HR PRELIFE 5
 DRIVER UPPER RIB V-AXIS REDUNDANT ACCELERATION

TEST NUMBER: 050212-1

PHYS 214 LEFT SIDE IMPACT



CHANNEL: LIFXR1 FILTER: FIR100

PEAK DATA: 51.72 @ 3.35 MS, 13.4 @ 200.38 MS

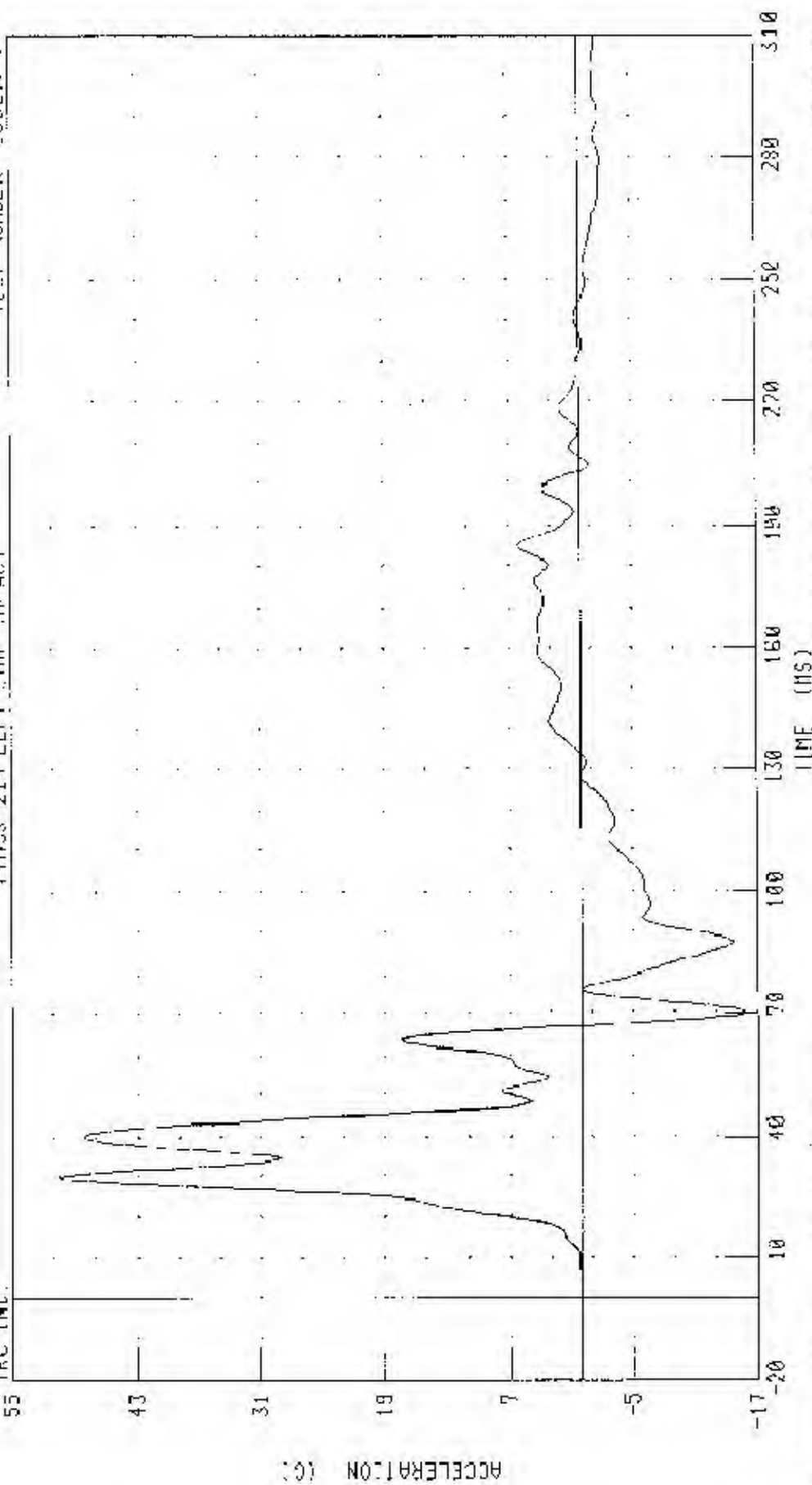
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2000S MAZDA PROTEGE 5

DRIVER LOWER RIB Y-AXIS REDUNDANT ACCELERATION

TEST NUMBER: 030212-1

FMVSS 214 LEFT SIDE IMPACT

TRC INC.



C-CHANNEL LLYR2 FILTER: FIR 100

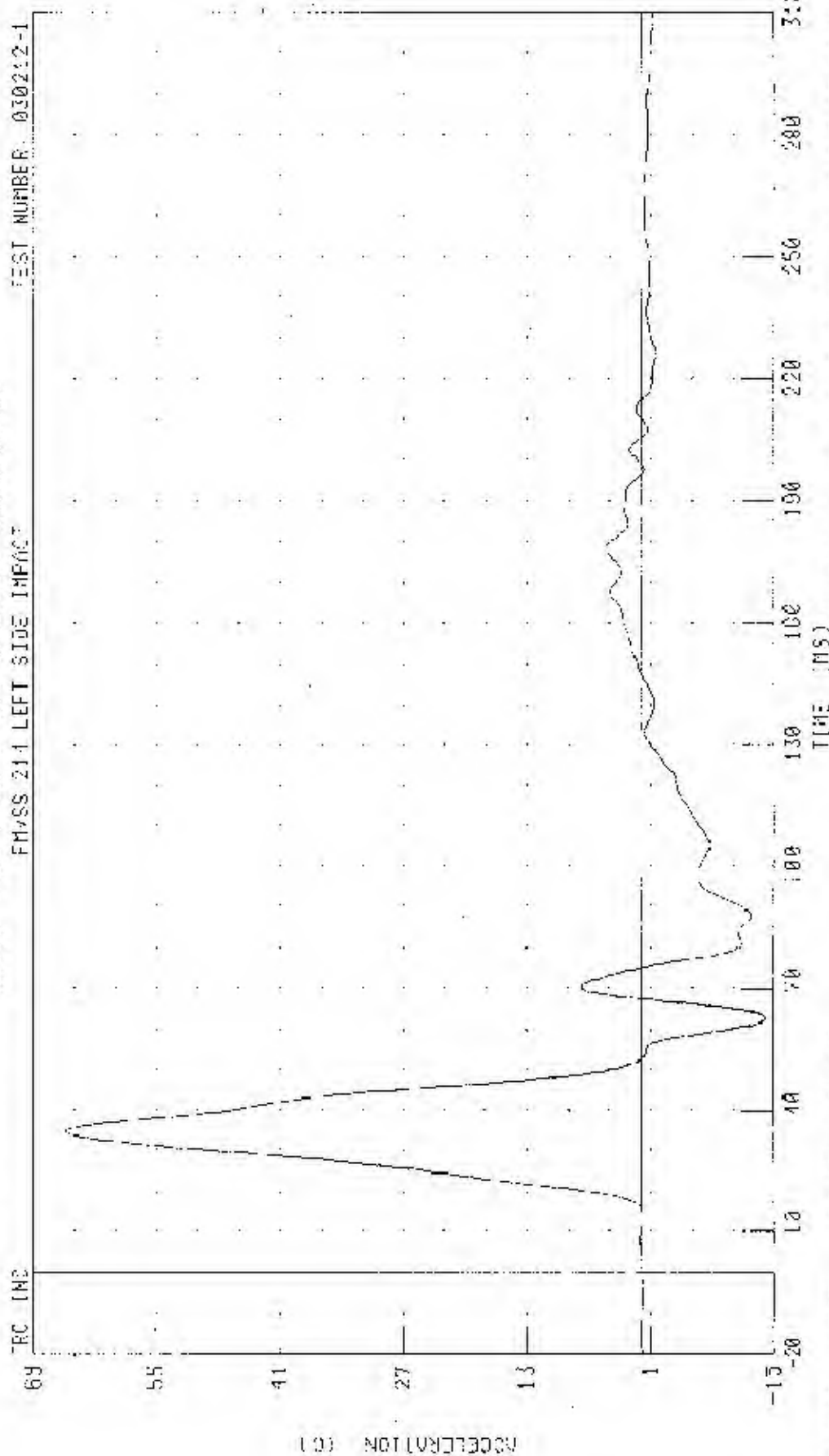
PEAK DATA 50.54 G @ 30.80 MS, -15.93 G @ 70.80 MS

48/24 KPII 90 DEGREE SIDE IMPACT MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2001 MEDIA PROJECT 5

DRIVER OVER SPINE Y-AXIS RECURRENT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER: 030212-1



TIME (MS)

PEAK DATA: 60.20 G @ 34.38 MS, -14.00 G @ 63.13 MS

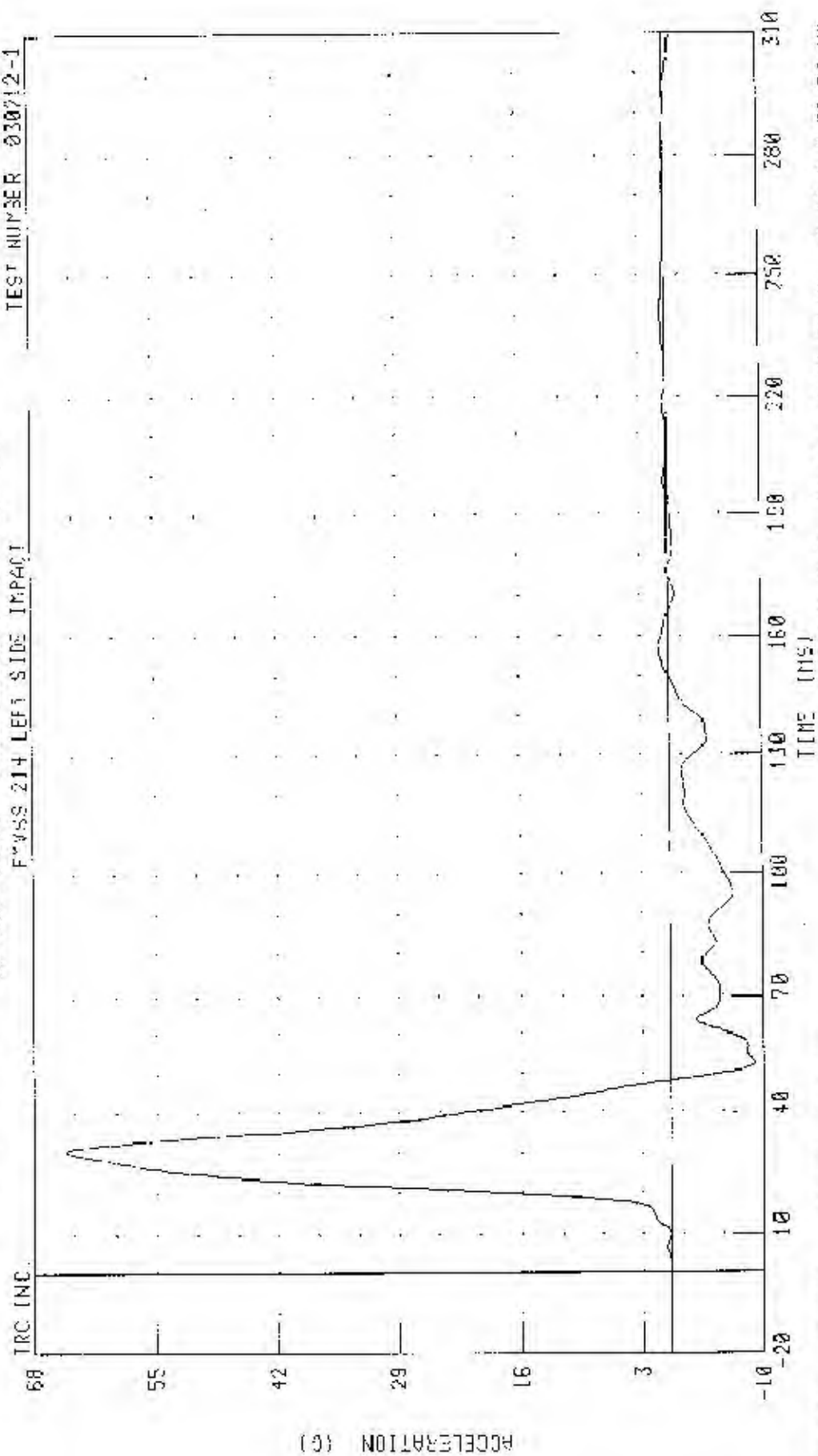
CHANNEL 112Y2: FILTER: FIR 100

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROTEGE S

DRIVER PELVIS Y-AXIS REDUNDANT ACCELERATION

TEST NUMBER 030212-1

FVSS 214 LEFT SIDE IMPACT



CHANNEL PEYR1 FILTER FIR 00

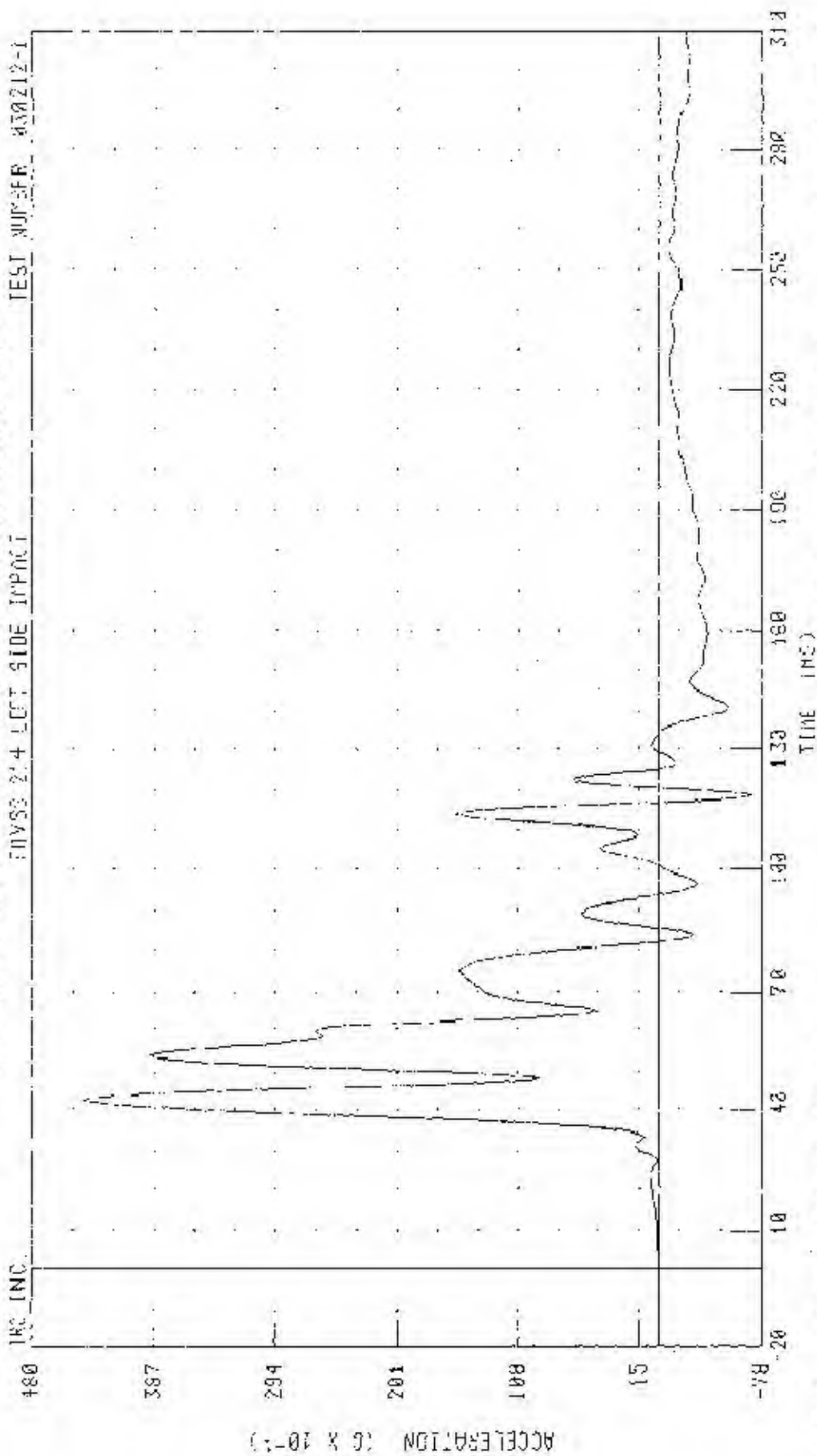
PEAK DATA: 64.55 30.31 25 MS, 19.10 30 52 50 MS

48/24 KPI, 90 DEGREE SIDE IMPACT (MOVING ULTIMATE BARRIER) WITH LEFT SIDE OF 2000 M-70A PROTECTIVE B

LEFT RAMP PASSING-R UPPER RTR V-AXIS SEQUENTIAL ACCELERATION

TEST NUMBER: 030212-1

TIME: 21.4 LEFT SIDE IMPACT



CHANNEL: LORV124 FILTER: 112 100

PLATE DATA: 44 07 0 0 42 50 MS

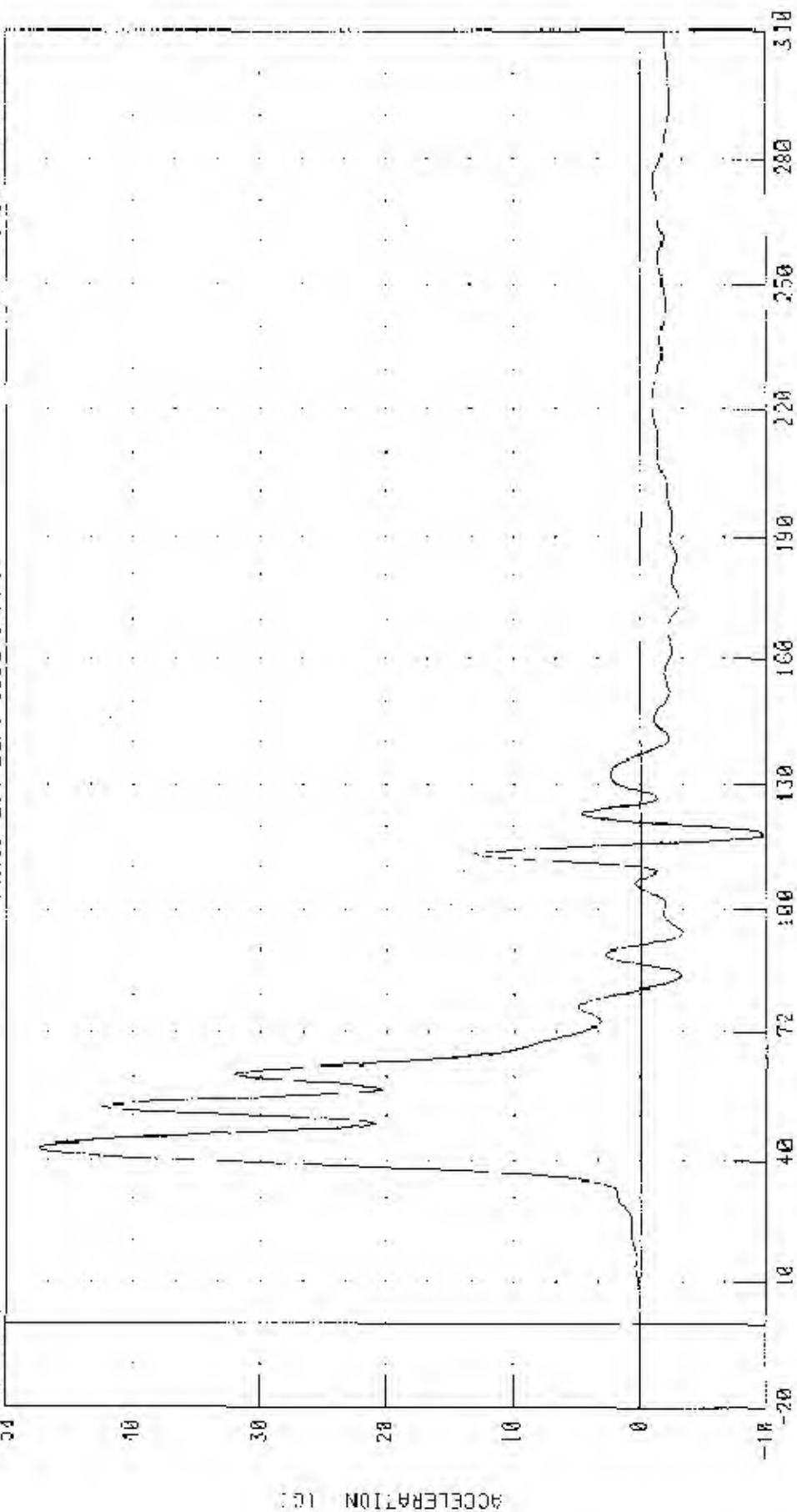
48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 1987 MAZDA PROTEGE 5

LEFT REAR PASSENGER LOWER RIB Y-AXIS REDUNDANT ACCELERATION

1RD INC

FMSS 214 LEFT SIDE IMPACT

TEST NUMBER 030212-1



TIME (MS)

CHANNEL: LLRYR4 FILTER: FIR 100

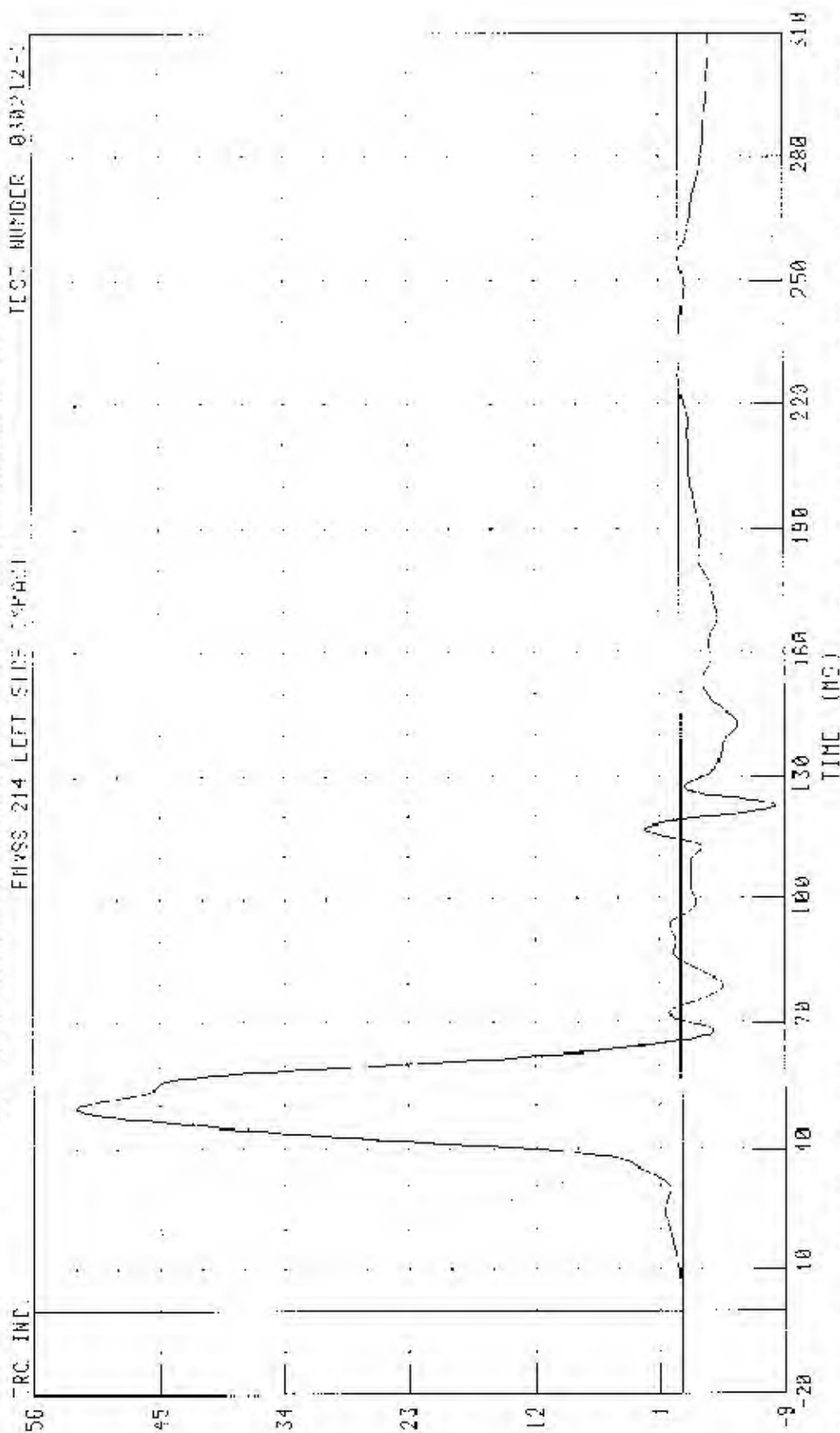
PLAK DATA 27 42 G @ 42.13 MS, -9.75 G @ 118.13 MS

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SID- OF 2001 MAZDA PROTEGE 5

LEFT REAR PASSENGER LOWER SPINE Y-AXIS EFFICIENT ACCELERATION

FMVSS 214 LEFT SIDE IMPACT

TEST NUMBER 030212-1

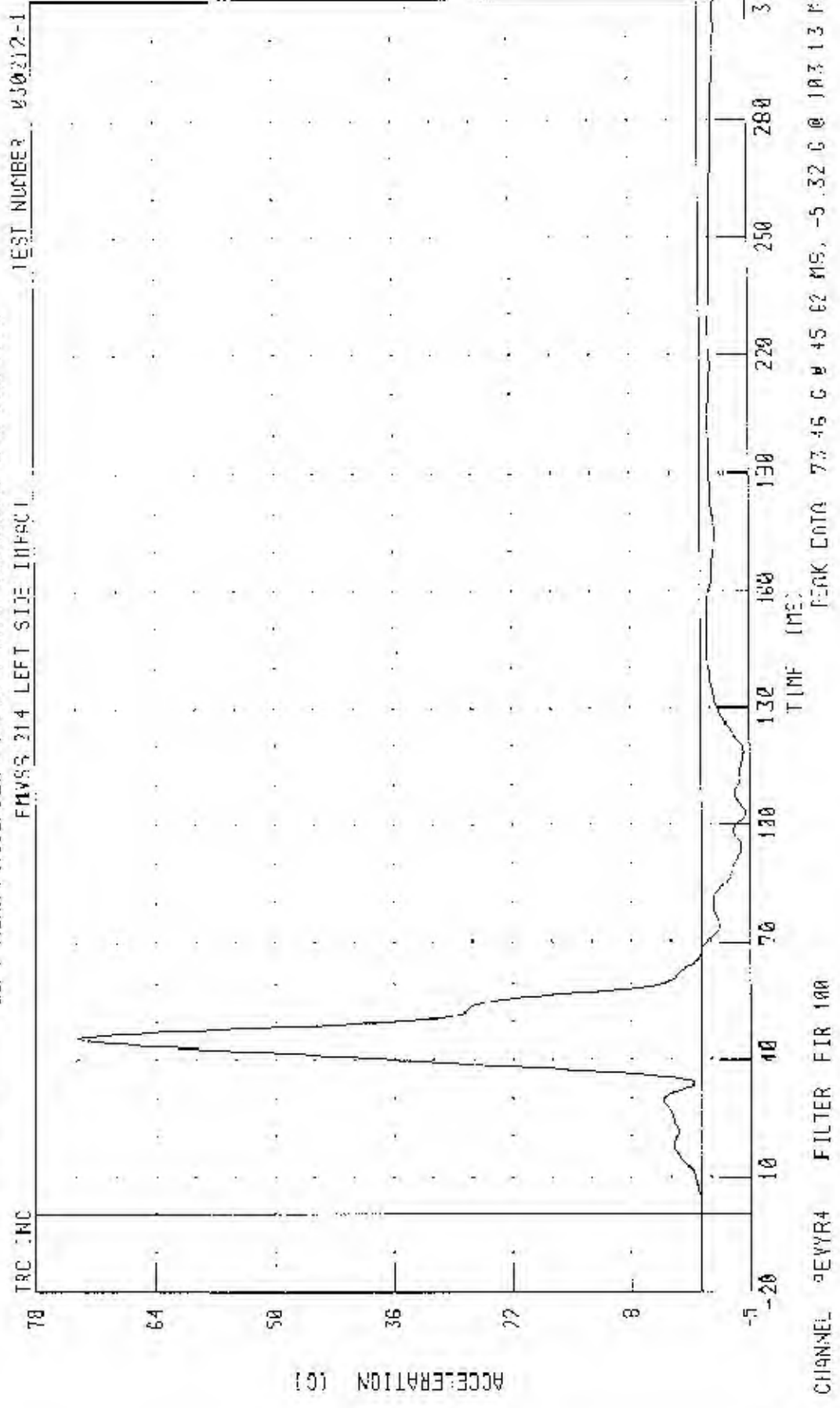


CHANNEL: T12YR4 FILTER: 1/3 100

PEAK DATA 53.22 G @ 49.67 MS, 0.31 G @ 122.50 MS

(5) ACCELERATION (G)

48/24 KPH 90 DEGREE SIDE IMPACT (MOVING DEFORMABLE BARRIER) INTO LEFT SIDE OF 2003 MAZDA PROJIGE 5
 LEFT REAR PASSENGER PE-VIO Y AXIS REDUNDANT ACCELERATION



ACCELERATION (G)

030212-1

B-138

Appendix C

SID Configuration And Performance Verification Data

Summary
SID Pre-Test And Post-Test Calibration

Configured For Left Side Impact

Date: January 21 - February 14, 2003

TRC Inc. Test Number: 065CAL02 & 03; 066CAL02 & 03

Laboratory Technician: Jack Willeke

Test Parameter	Specification	SID 65		SID 66	
		Pre-Test	Post-Test	Pre-Test	Post-Test
SH - seated height (mm)	889-909	895	893	893	896
RH - Rib Height (mm)	502-520	509	510	511	510
HP - Hip Pivot Height (mm) ¹	99 ref	---	---	---	---
RD - Rib from Back Line (mm)	229-241	236	237	235	236
KV - Knee Pivot from Back Line (mm)	511-526	516	515	520	521
SW - Knee Pivot to Floor (mm)	490-505	498	499	499	498
HW - Hip Width (mm)	356-391	371	372	387	388
Thorax Impacts					
Temperature (°C)	18.9-25.5	22.2	21.1	21.7	21.1
Relative Humidity (%)	10-70	29	31	25	31
Probe Speed (m/s)	4.27-4.33	4.29	4.29	4.29	4.29
Upper Rib (g's)	37-46	39.7	42.3	37.2	39.2
Lower Rib (g's)	37-46	38.8	39.6	40.5	38.9
Lower Spine (g's)	15-22	18.1	19.1	20.3	20.9
Pelvis Impacts					
Temperature (°C)	18.9-25.5	22.2	21.1	21.7	21.1
Relative Humidity (%)	10-70	28	31	29	31
Probe Speed (m/s)	4.27-4.33	4.29	4.29	4.29	4.29
Pelvis (g's)	40-60	54.1	46.6	46.8	52.5

¹ Dimension not recorded.

Calibration Test Results

Pre-Test

SJD: 065

Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Thorax Impact Test:	The lateral thorax passed all impact test requirements.
Thoracic Shock Absorber:	The thoracic shock absorber passed all test requirements.
Lumbar Flexion Test:	The dummy met the lumbar flexion test requirements.
Abdominal Compression Test:	The abdomen met the compression test requirements.
Pelvis Impact Test:	The lateral pelvis passed all impact test requirements.

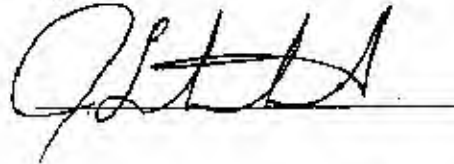
Transportation Research Center Inc.
572F SID Dummy
External Dimensions
Serial No. 065 Calibration No. 02

Test Parameter	Dimension	Specification	Results	Pass
Seated Height	SH	889.0 - 909.3 mm	895 mm	Yes
Knee Pivot From Backline	KH	510.5 - 525.8 mm	516 mm	Yes
Knee Pivot From Floor	KV	490.2 - 505.5 mm	498 mm	Yes
Hip Width	HW	355.6 - 391.2 mm	371 mm	Yes
Rib Height	RH	501.7 - 520.7 mm	509 mm	Yes
Rib From Backline	RD	228.6 - 241.3 mm	236 mm	Yes
Top Rib Width From C/L	RW-1	165.1 - 180.3 mm	175 mm	Yes
Bottom Rib Width From C/L	RW-2	165.1 - 180.3 mm	176 mm	Yes
Difference Between Top & Bottom Rib Width from C/L		<= 2.5 mm	1.0 mm	No

Technician



Approved




TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

04-FEB-03

LEFT SIDE CONFIGURATION

TRC INC. TEST NO: STLO6502

572F SID SN065 L.THORAX CAL02

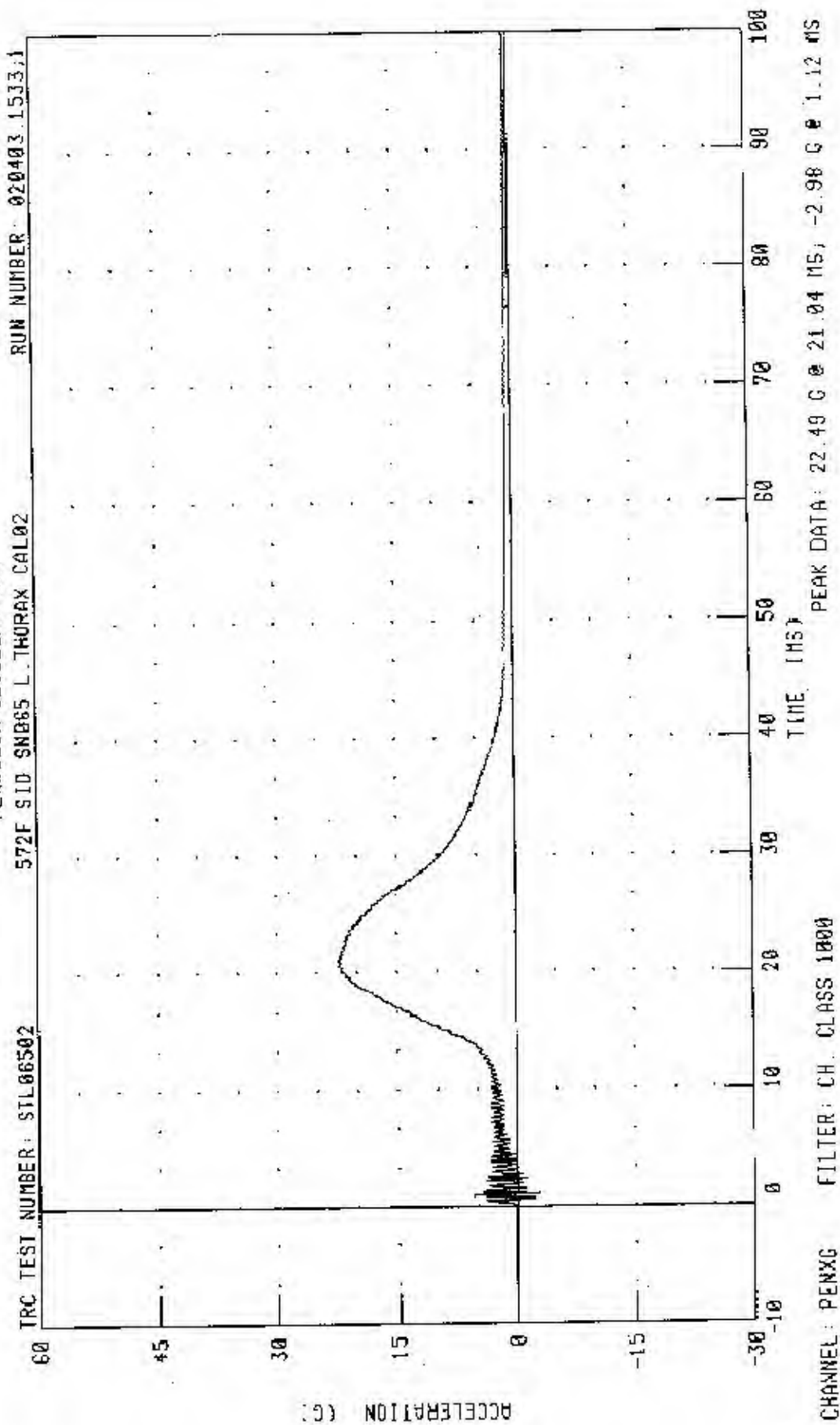
TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	22.2 DEG. C
RELATIVE HUMIDITY	10 - 70 %	29.0 %
PENDULUM VELOCITY	4.21 - 4.33 M/S	4.29 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	39.7 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	38.8 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	18.1 G

TEST MEETS SPECIFICATIONS

TECHNICIAN 

RUN NUMBER: 020403.1533;1

PART 572-F S.I.O. THORAX CALIBRATION - (LEFT SIDE IMPACT)
 PENDULUM DECELERATION

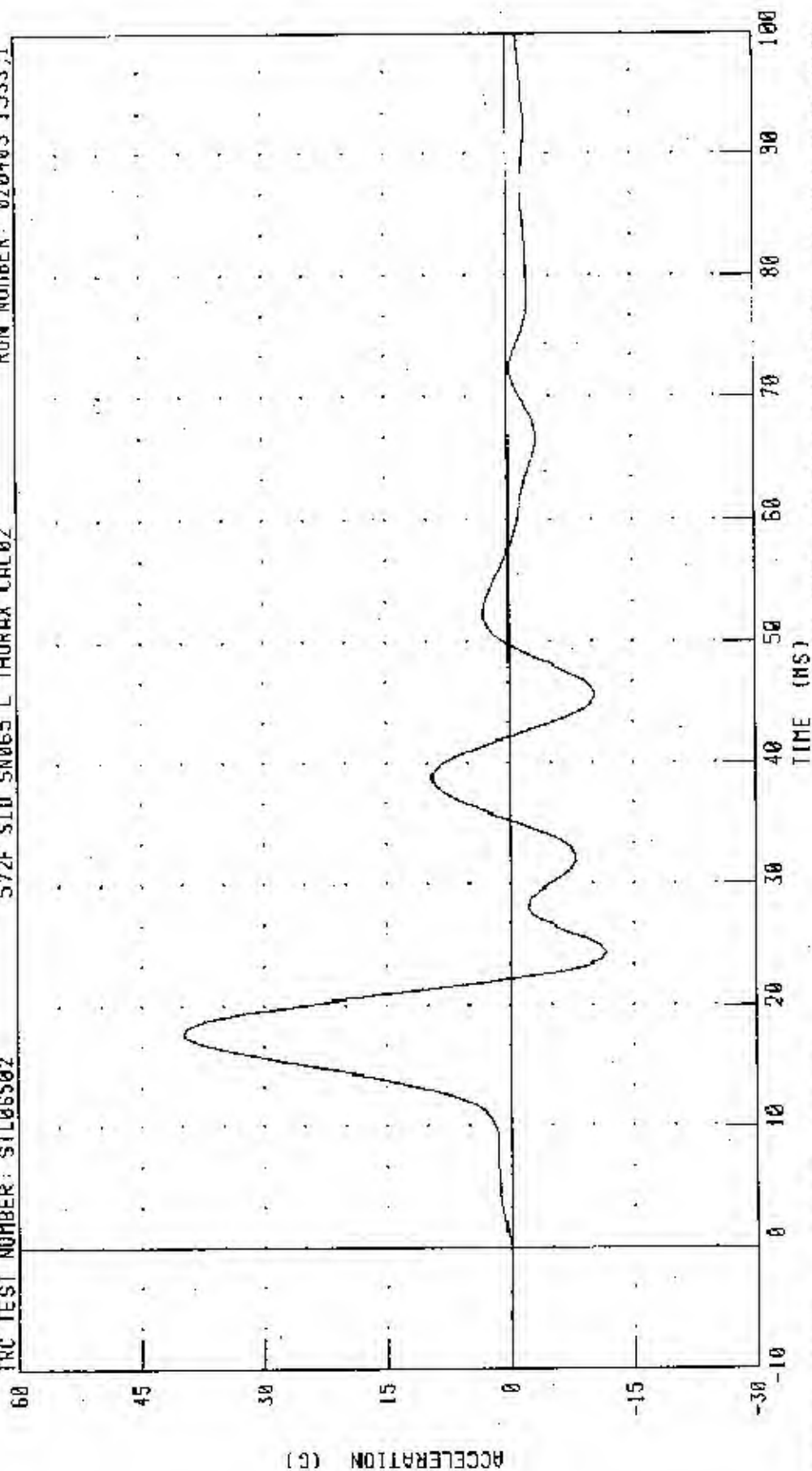


PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)
 LEFT UPPER RIB ACCELERATION Y AXIS

IRC TEST NUMBER: S1L06502

572F SLD SN065 L THORAX CAL02

RUN NUMBER: 020403 1533.1



CHANNEL: LURYG FILTER: FIR 100

PEAK DATA: 39.68 G @ 17.50 MS, -11.78 G @ 24.38 MS

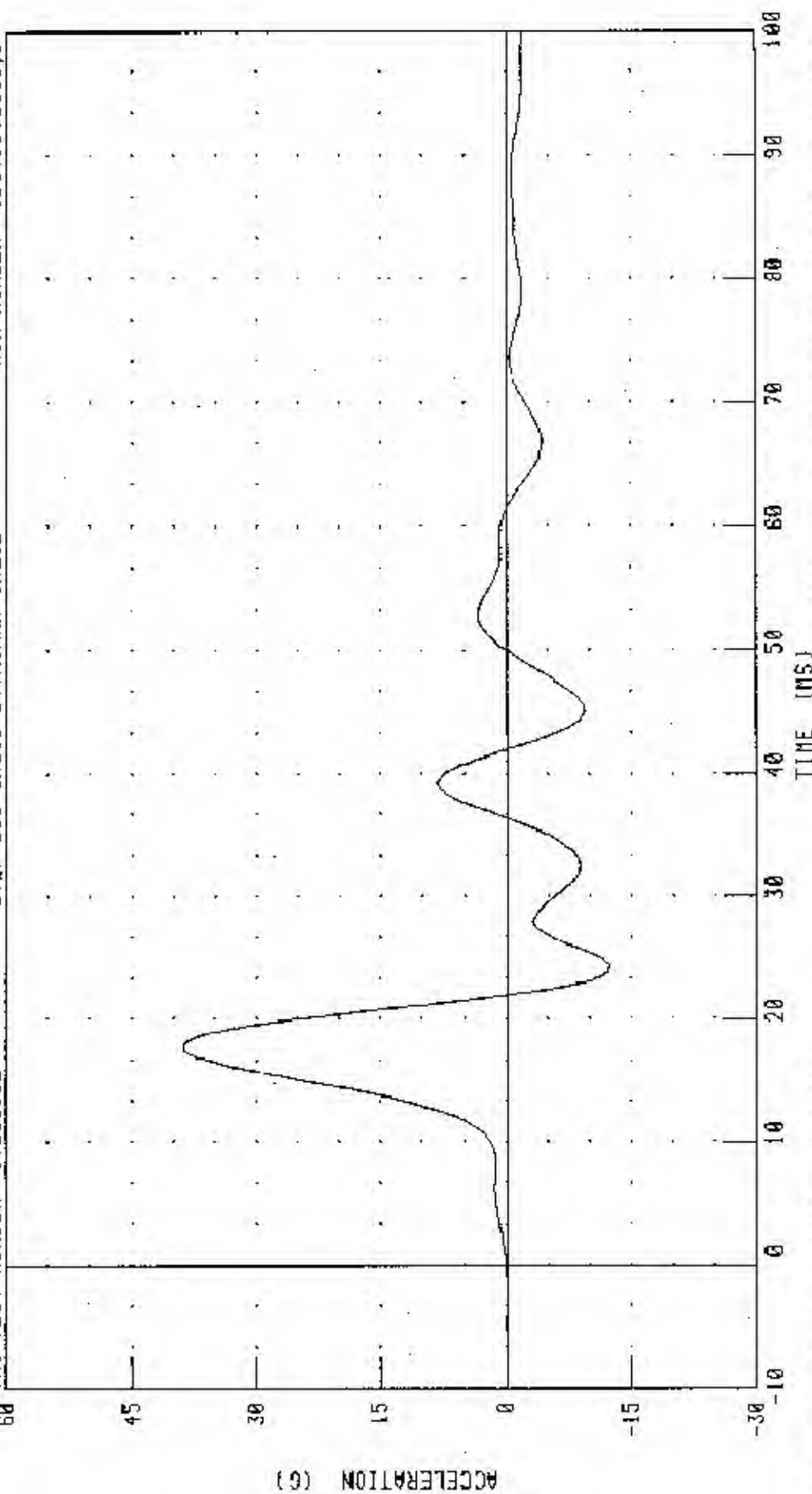
PART 572-F S.I.D. THORAX CALIBRATION -- (LEFT SIDE IMPACT)

LEFT LOWER RIB ACCELERATION Y AXIS

IRC TEST NUMBER: ST106502

572F S10 SN065 L THORAX CAL02

RUN NUMBER: 020403.1533.1



CHANNEL: LRYG FILTER: FIR 100

PEAK DATA: 38.85 G @ 17.50 MS; -12.52 G @ 24.30 MS

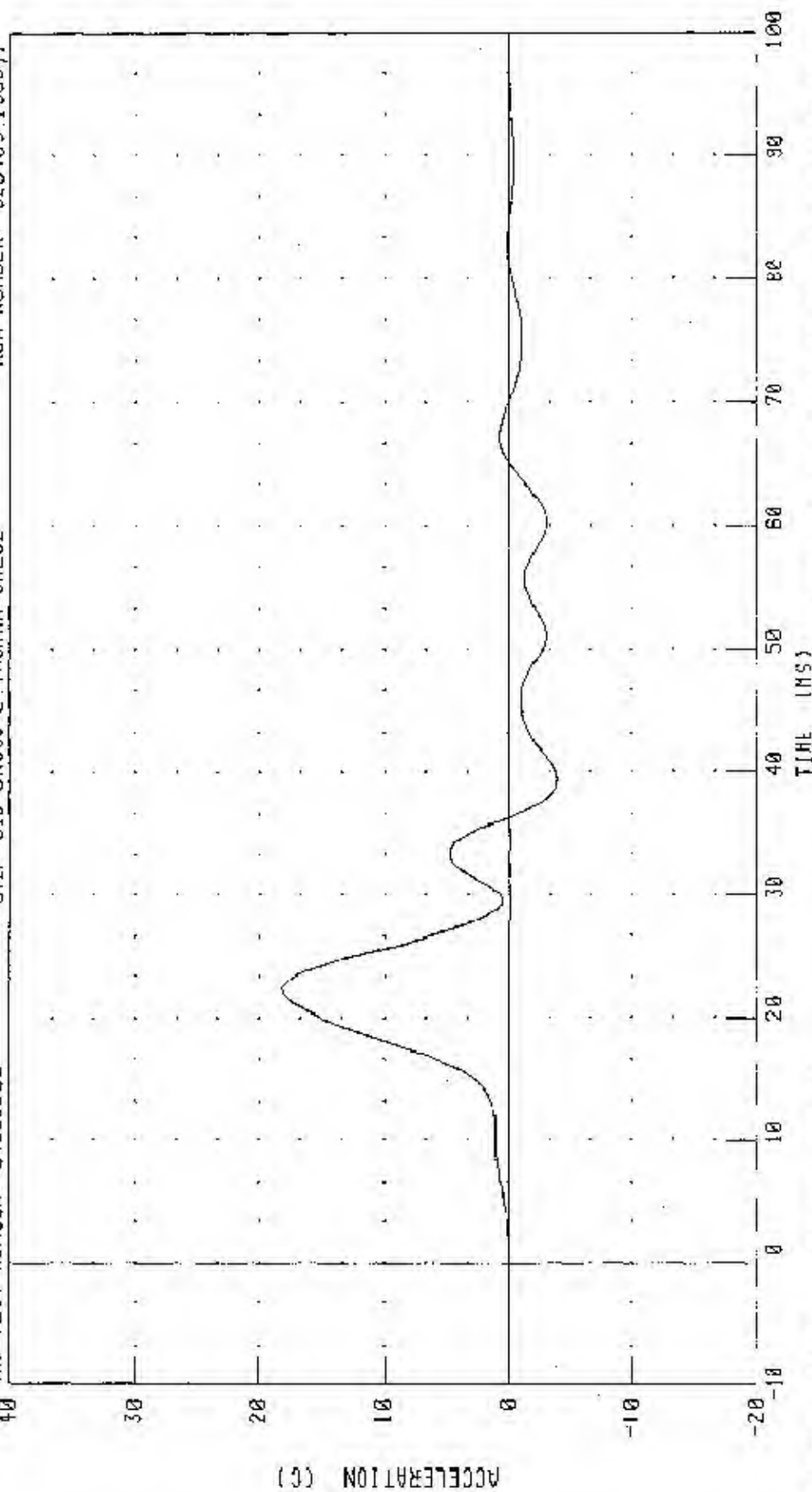
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LOWER SPINE ACCELERATION Y AXIS

TRC TEST NUMBER: STL06502

572F SIO SN065 L THORAX CAL02

RUN NUMBER: 020403.1533.1



CHANNEL T12YC FILTER: FIR 100

PEAK DATA: 18.14 G @ 22.50 MS, -3.94 G @ 35.38 MS

TRANSPORTATION RESEARCH CENTER INC.

THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

03-FEB-03

TRC INC.

572F SN065 DAMPER TEST CAL02

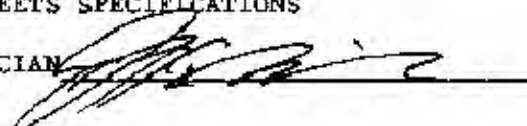
TEST NUMBERS: DP06502A, DP06502B, DP06502C

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		18.9 - 25.5 C	21.7 DEG. C
RELATIVE HUMIDITY		10 - 70 %	46.0 %
VELOCITY	FORCE	667 - 925 N	791 N
2.71 M/S	DISPLACEMENT	29.7 - 34.5 MM	31.1 MM
VELOCITY	FORCE	1706 - 2072 N	1715 N
4.24 M/S	DISPLACEMENT	31.6 - 37.2 MM	36.5 MM
VELOCITY	FORCE	3784 - 4495 N	4243 N
6.12 M/S	DISPLACEMENT	33.3 - 39.6 MM	37.2 MM

DAMPER SETTING = 5.5

TEST MEETS SPECIFICATIONS

TECHNICIAN



RUN NUMBER: 020303.0805;1

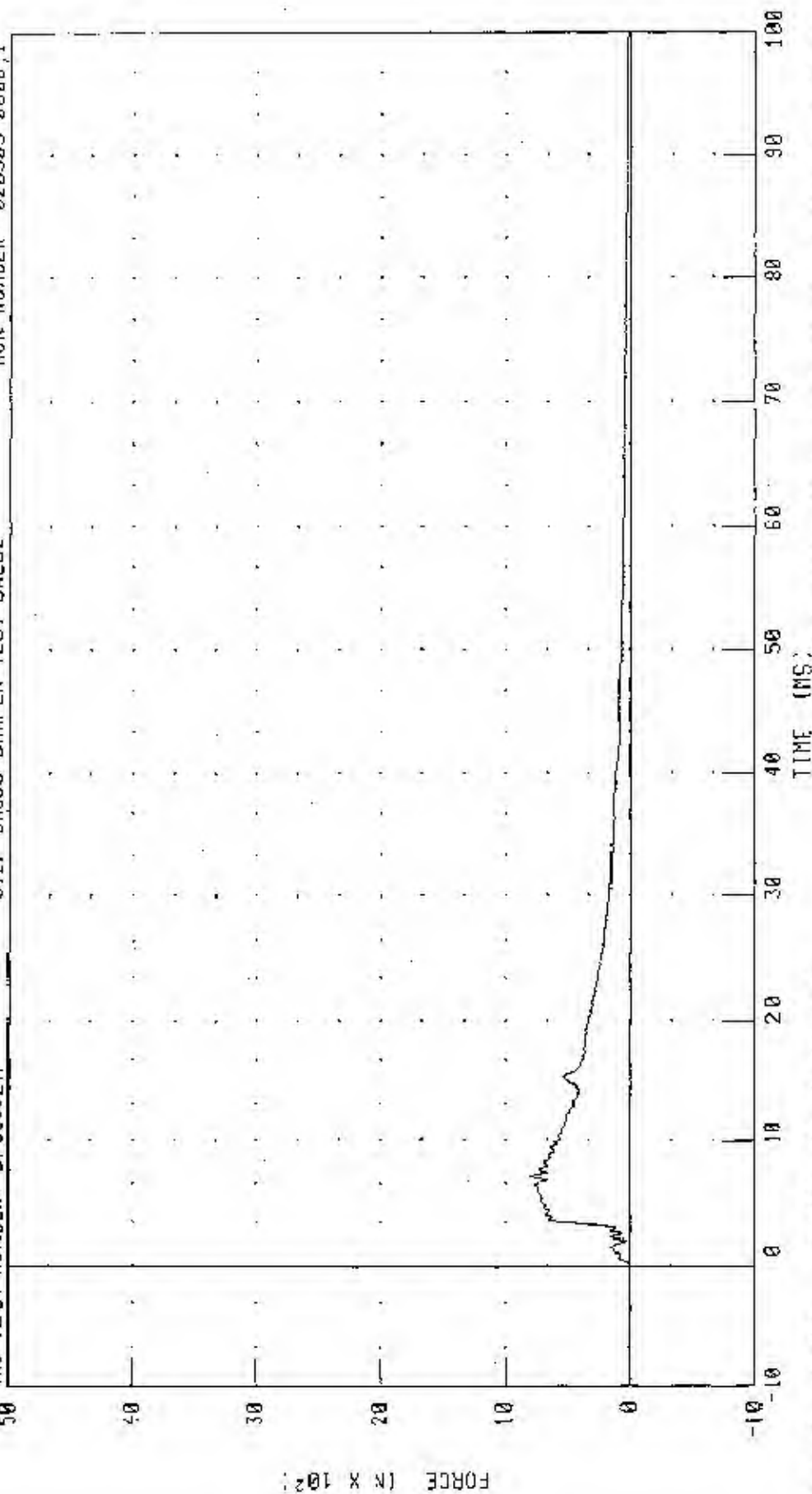
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP06502A

572F 5A065 DAMPER TEST CAL02

RUN NUMBER: 000303 0006,1



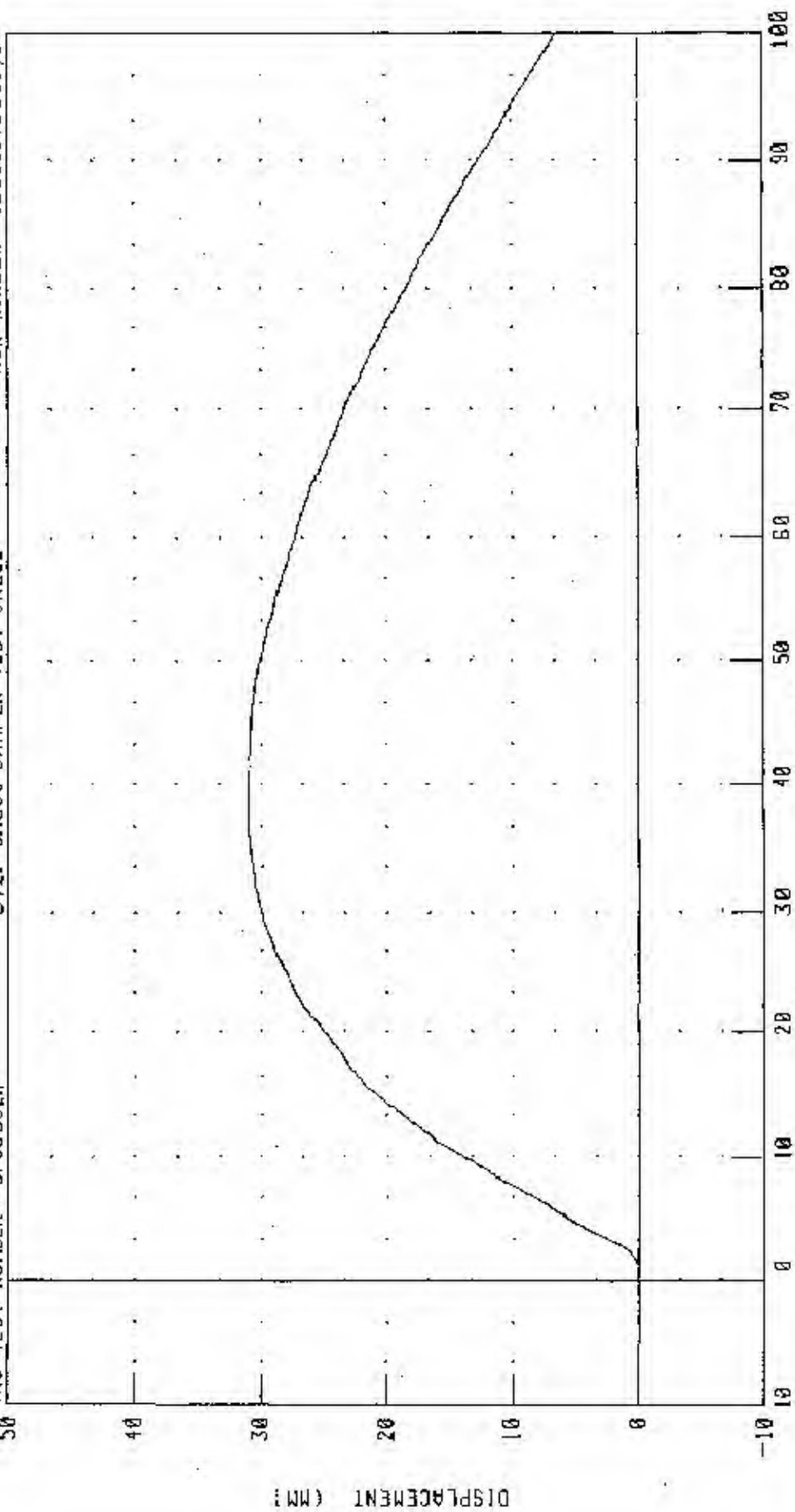
CHANNEL: DAMPF FILTER: CH. CLASS 1000

PEAK DATA: 790 76 N @ 7.36 MS, -1.99 N @ -6.96 MS

PART 572-F 9.1.0. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER DISPLACEMENT

IRC TEST NUMBER: DP06502A 572F SN085 DAMPER TEST CAL02 RUN NUMBER 020303.00006.1



PEAK DATA: 31.00 MM @ 37.75 MS; 0.00 MM @ -0.00 MS

CHANNEL: CSTYD FILTER: CH, CLASS 1000

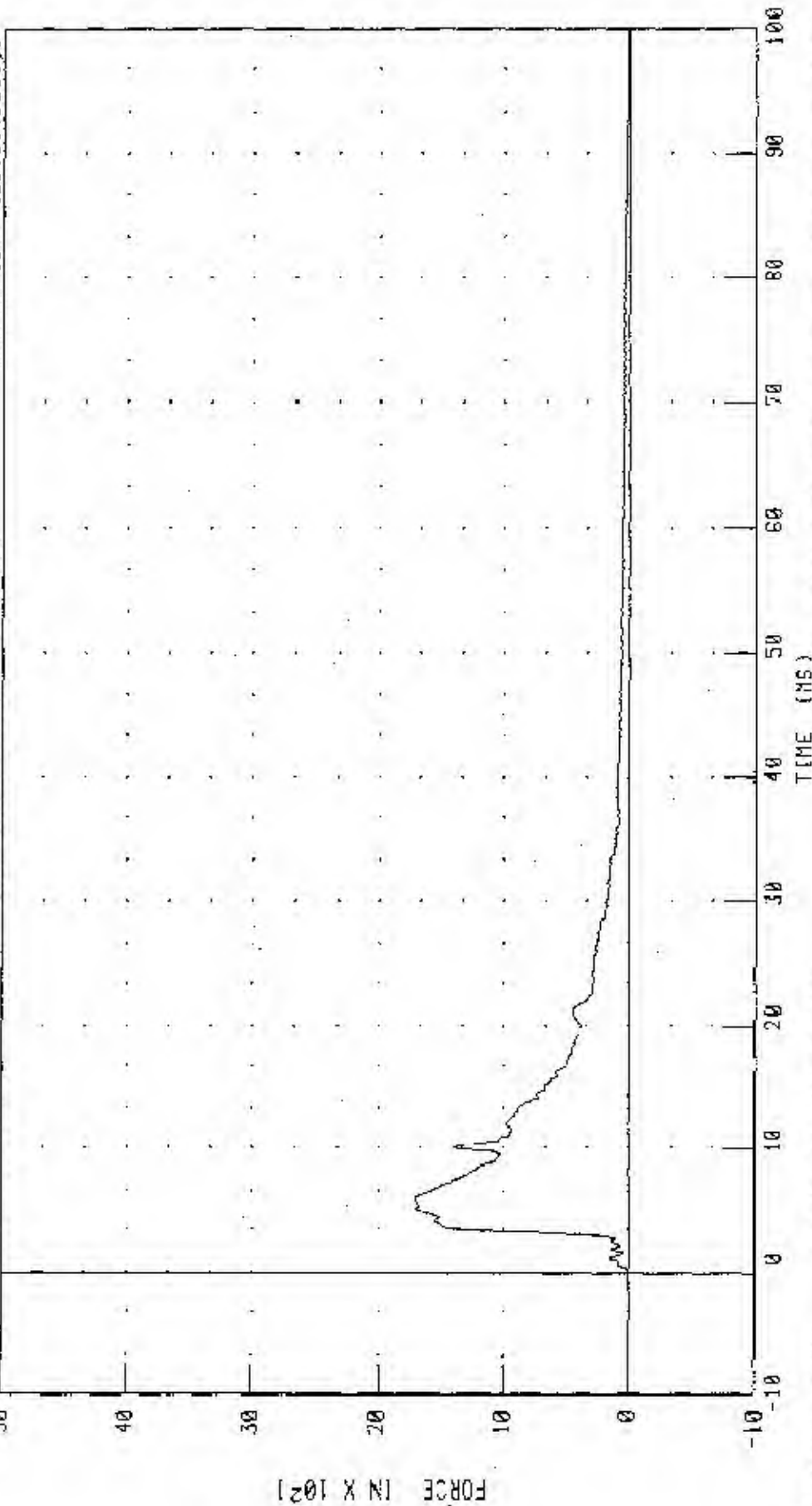
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 N/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DPW6502B

572F SN065 DAMPER TEST CAL02

RUN NUMBER: 020303.0806.1



PEAK DATA: 1714.63 N @ 0.16 MS, 1.52 N @ 0.24 MS

CHANNEL: DAMPT FILTER: CH. CLASS 1000

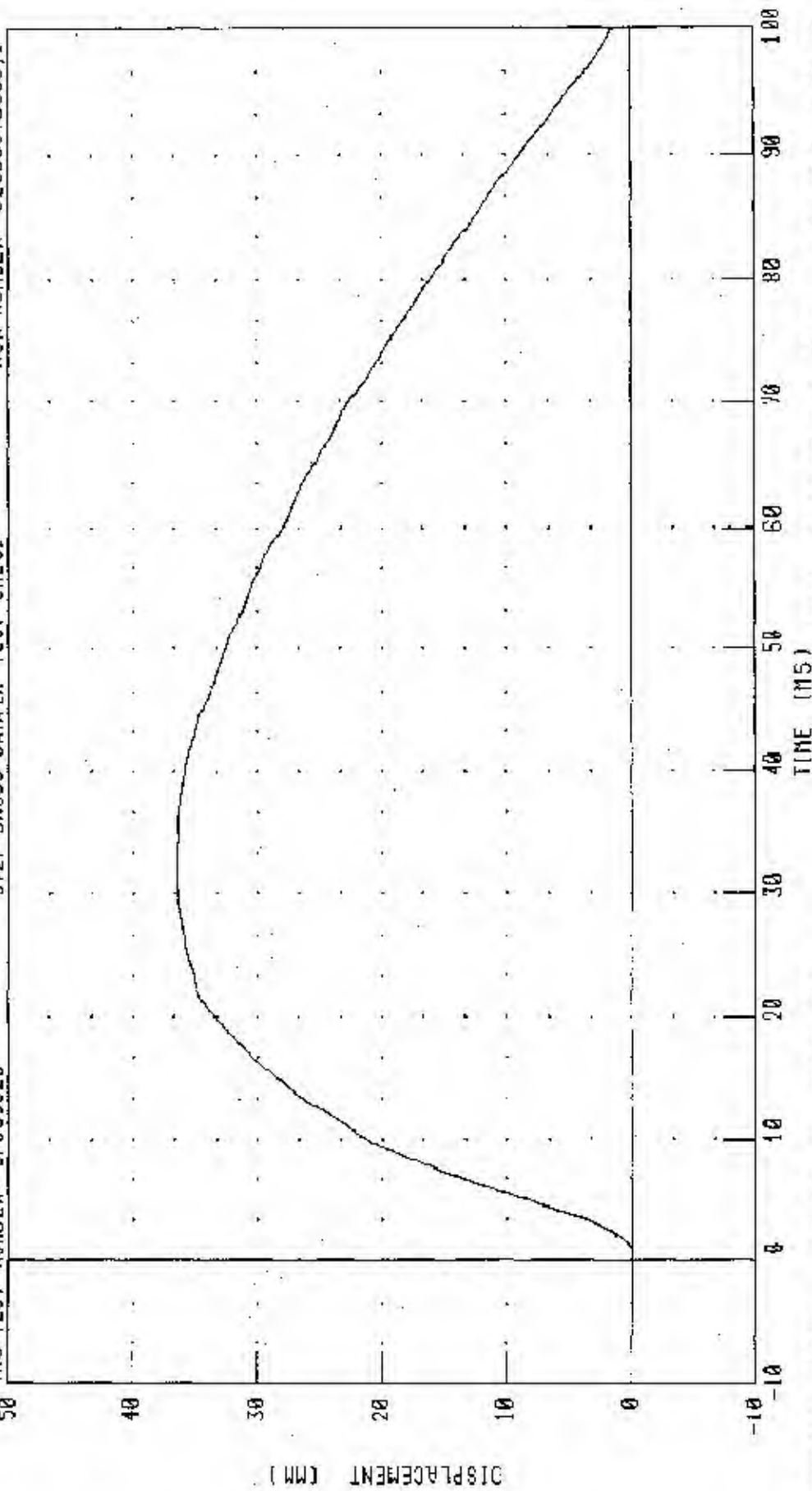
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 M/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP06502B

572F SN055 DAMPER TEST CAL02

RUN NUMBER: 020303.0806,1



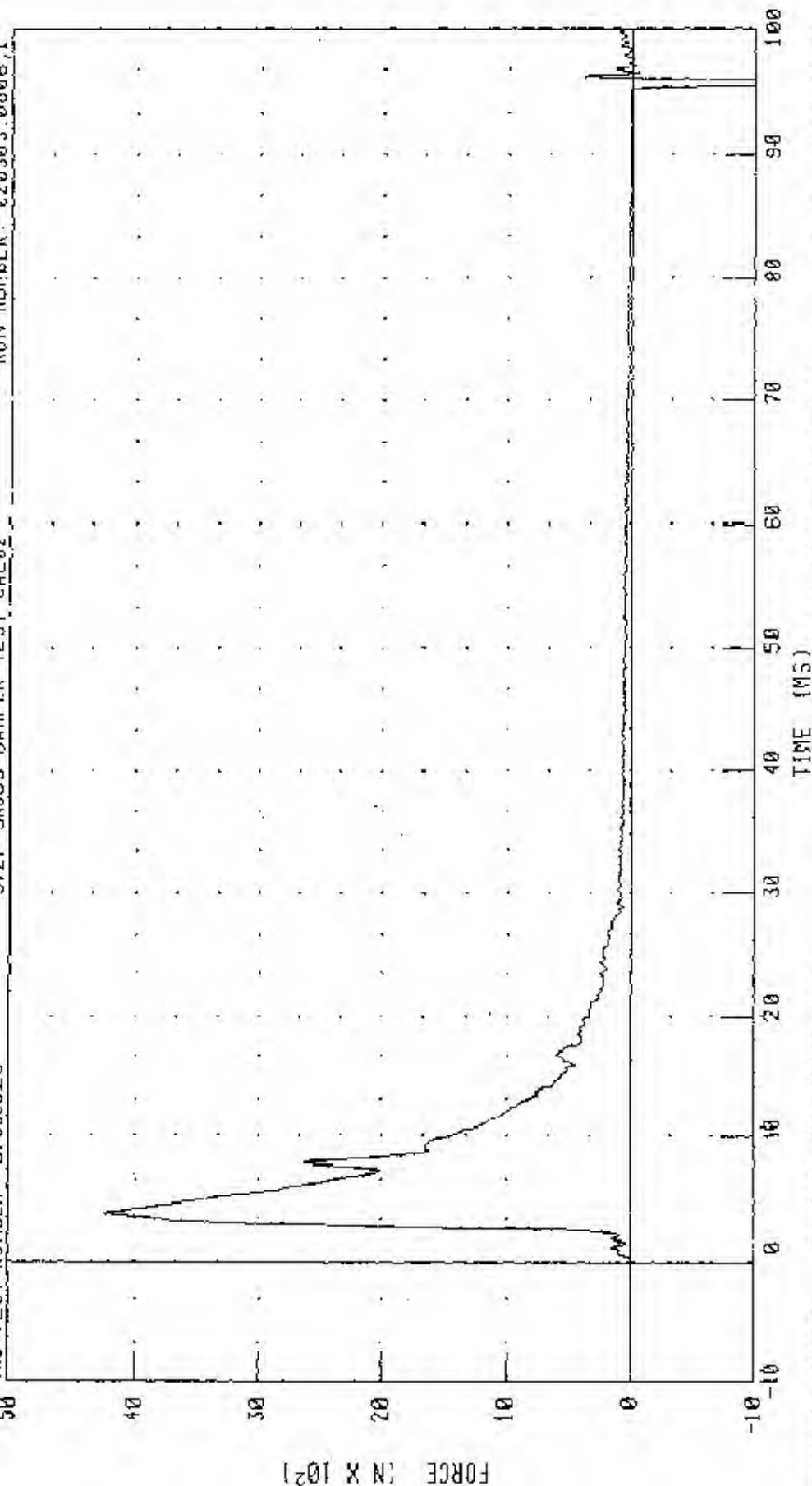
PEAK DATA: 35.48 MM @ 31.44 MS, -0.01 MM @ -2.80 MS

CHANNEL: CSTYD FILTER CH: CLASS 1000

PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 N/SEC)
 SHOCK ABSORBER RESISTIVE FORCE
 572F SN065 DAMPER TEST CAL02

TRC TEST NUMBER: DP08502C

RUN NUMBER: 020303.0806.1



CHANNEL: DAMPF FILTER: CW. CLASS 1000

PEAK DATA: 4243.19 N @ 3.75 MS; -1446.15 N @ 95.60 MS

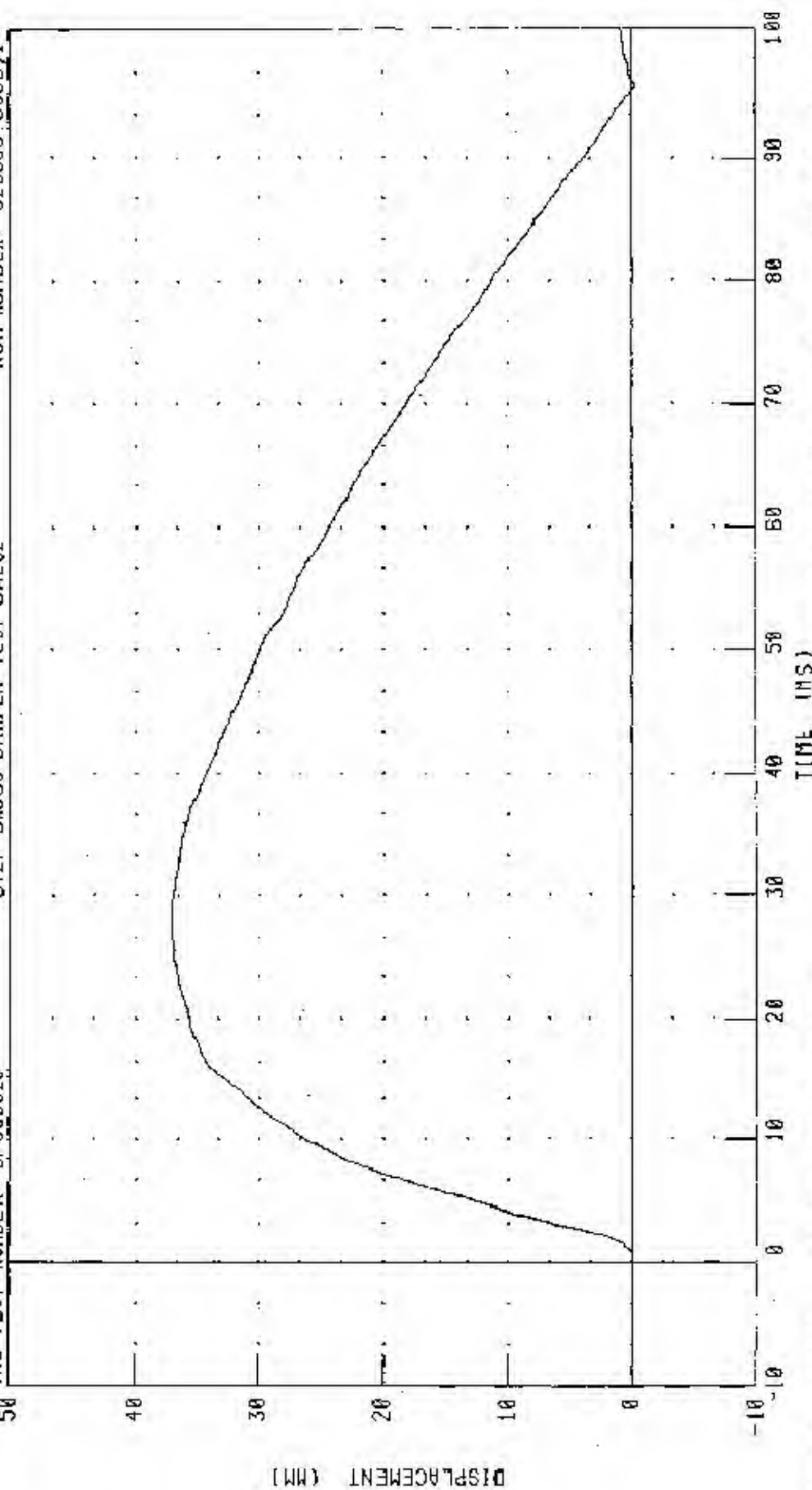
PART 572-F S.I.D THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER DISPLACEMENT

IRC TEST NUMBER: DP06502C

572F SH065 DAMPER TEST CAL02

RUN NUMBER: 020303.0806.1



CHANNEL: CSTVD FILTER: CII CLASS 1000

PEAK DATA: 37.18 MM @ 28.80 MS, -0.26 MM @ 95.68 MS

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

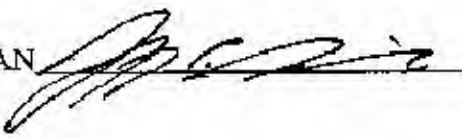
SID PART 572B

CAL DATE: 21-Jan-03

TRC, INC. TEST NO: 065C02LF1 572B SN 065 TORSO FLEX CAL 02

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.6 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	17 %
FORCE AT 0 DEG. FLEXION	-27 - 27 N	0 N
FORCE AT 20 DEG OF FLEXION	98 - 151 N	149 N
FORCE AT 30 DEG OF FLEXION	151 - 205 N	201 N
FORCE AT 40 DEG OF FLEXION	205 - 258 N	255 N
NET RETURN ANGLE AFTER 3 MINUTES	< 12 DEG.	5 DEG.

TEST MEETS SPECIFICATIONS

TECHNICIAN 

Transportation Research Center Inc.

572B Abdomen Compression Test

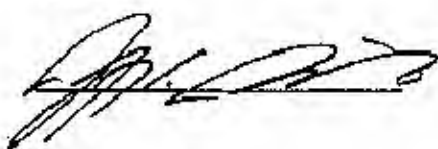
SID Serial No. 065 Calibration No. 02 - 1

Test Date 01/22/2003

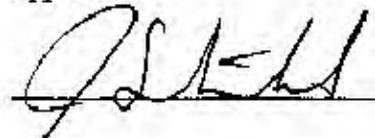
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	31 %	Yes
Displacement Rate	6.35 - 8.89 mm/s	6.9 - 8.0 mm/s	Yes
Data Within Required Corridor	Yes	Yes	Yes

Comments:

Technician



Approved



01.22.2003 10:35:22 652

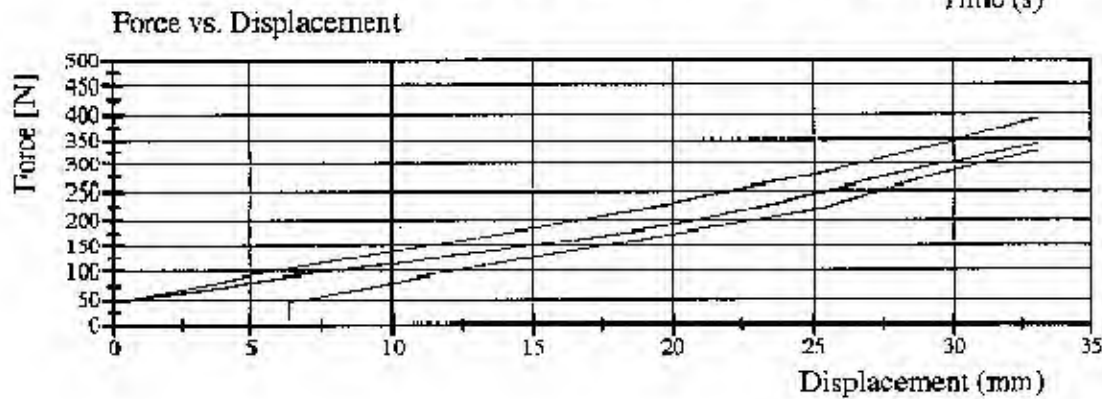
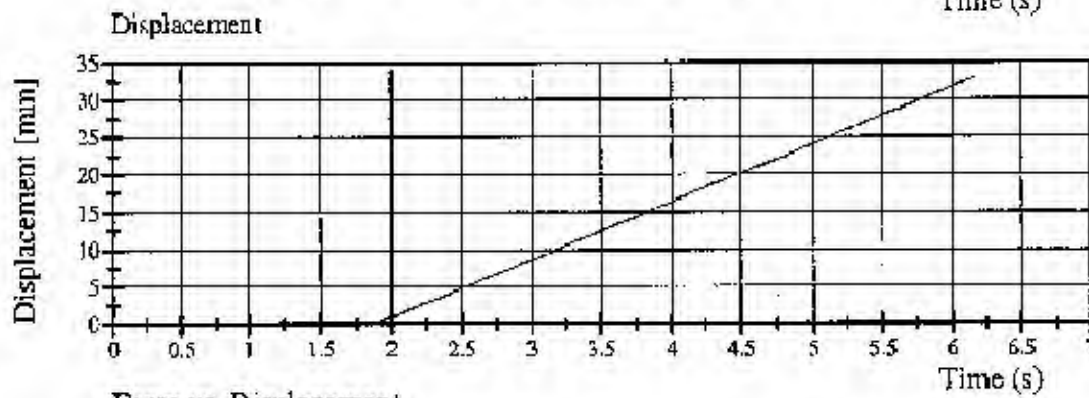
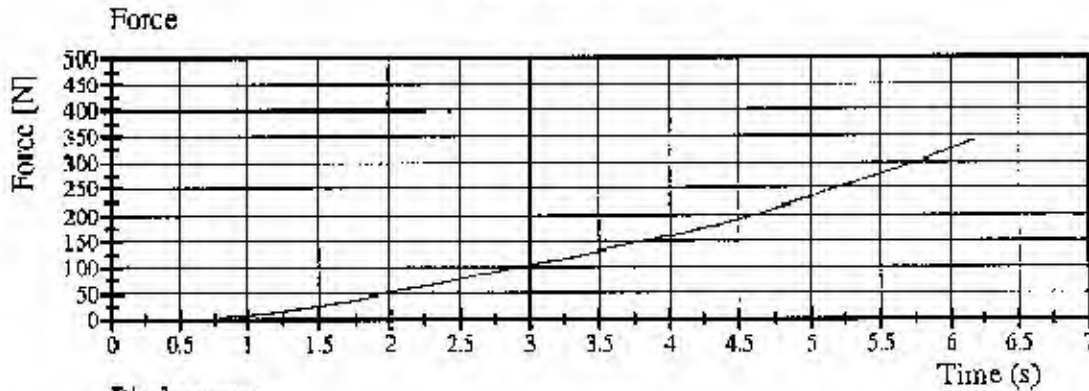


Transportation Research Center Inc.

572B Abdomen Compression Test

SID Serial No. 065 Calibration No. 02 - 1

Test Date 01/22/2003



01.22.2003 10:35:23 652



TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

04-FEB-03

LEFT SIDE CONFIGURATION

TRC INC.

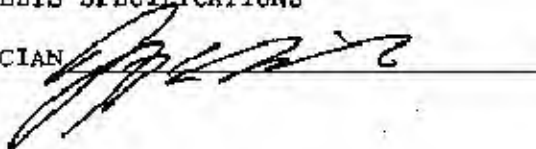
TEST NO: SPL06502

572F SNO65 LEFT PELVIS CAL02

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 ~ 25.5 C	22.2 DEG. C
RELATIVE HUMIDITY	10 - 70 %	28.0 %
PENDULUM VELOCITY	4.21 - 4.33 M/S	4.29 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	54.1 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	6.0 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN



RUN NUMBER: 020403.1542;1

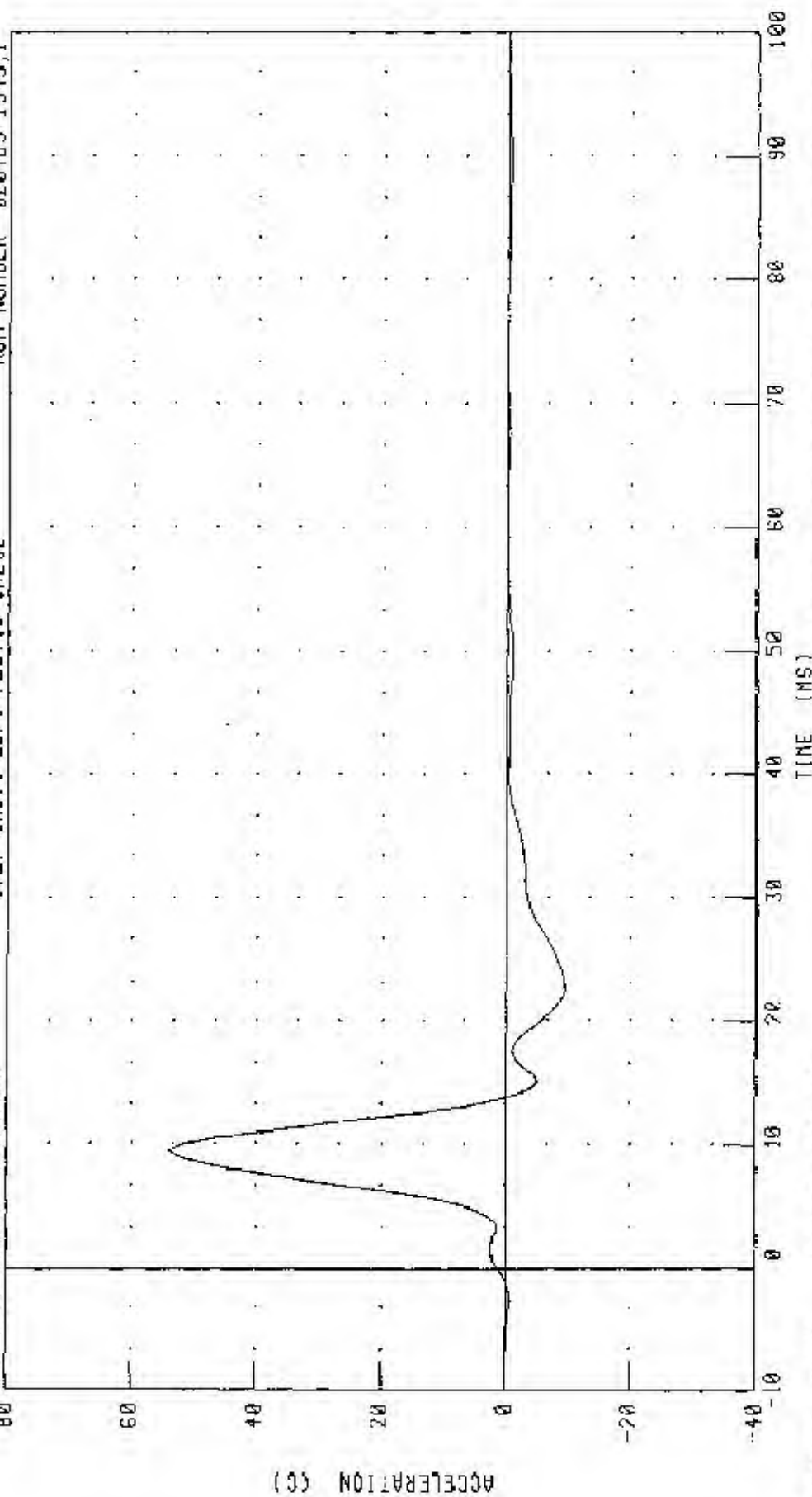
PART 572-F S I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PELVIS ACCELERATION Y AXIS

572F SN065 LEFT PELVIS CAL02

TRC TEST NUMBER: SPL06502

RUN NUMBER 020403 1543.1



CHANNEL: PELVYG FILTER: FIR 100

PEAK DATA: 51.13 G @ 9.37 MS, 9.59 G @ 23.13 MS

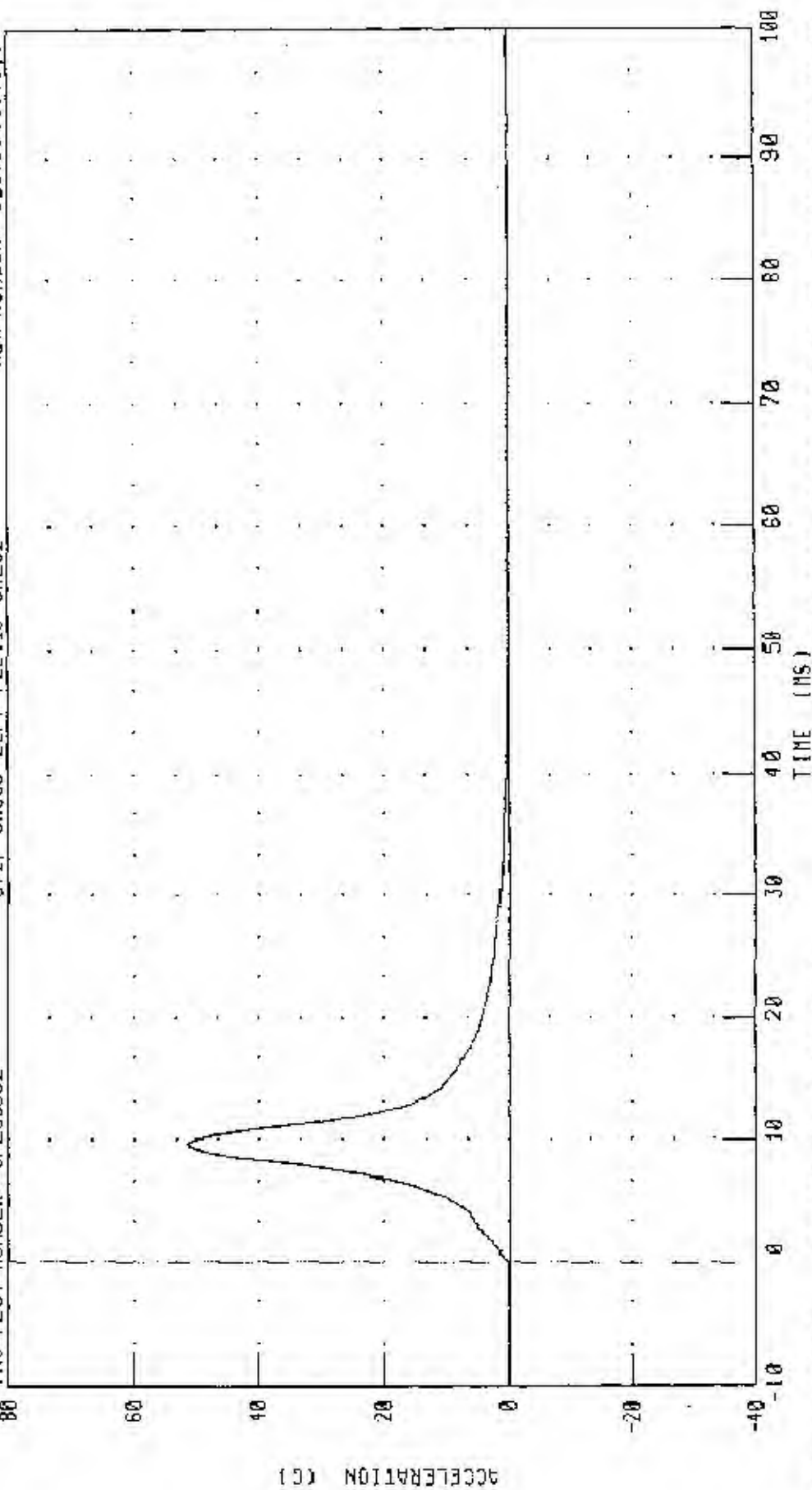
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PENDULUM DECELERATION

IRC TEST NUMBER: SPL06502

572F SN065 LEFT PELVIS CAL02

RUN NUMBER: 020403.1543.1



CHANNEL: PENXC FILTER: CH CLASS 1000

PEAK DATA: 51.50 0 0 9.68 MS, -0.19 0 0 51.52 MS

Calibration Test Results

Pre-Test

SID: 066

Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Thorax Impact Test:	The lateral thorax passed all impact test requirements.
Thoracic Shock Absorber:	The thoracic shock absorber passed all test requirements.
Lumbar Flexion Test:	The dummy met the lumbar flexion test requirements.
Abdominal Compression Test:	The abdomen met the compression test requirements.
Pelvis Impact Test:	The lateral pelvis passed all impact test requirements.

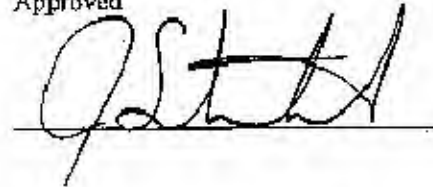
Transportation Research Center Inc.
572F SID Dummy
External Dimensions
Serial No. 066 Calibration No. 02

Test Parameter	Dimension	Specification	Results	Pass
Seated Height	SH	889.0 - 909.3 mm	893 mm	Yes
Knee Pivot From Backline	KH	510.5 - 525.8 mm	520 mm	Yes
Knee Pivot From Floor	KV	490.2 - 505.5 mm	499 mm	Yes
Hip Width	HW	355.6 - 391.2 mm	387 mm	Yes
Rib Height	RH	501.7 - 520.7 mm	511 mm	Yes
Rib From Backline	RD	228.6 - 241.3 mm	235 mm	Yes
Top Rib Width From C/L	RW-1	165.1 - 180.3 mm	175 mm	Yes
Bottom Rib Width From C/L	RW-2	165.1 - 180.3 mm	174 mm	Yes
Difference Between Top & Bottom Rib Width from C/L		<= 2.5 mm	1.0 mm	Yes

Technician



Approved



TRE

TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

04-FEB-03

LEFT SIDE CONFIGURATION

TRC INC.

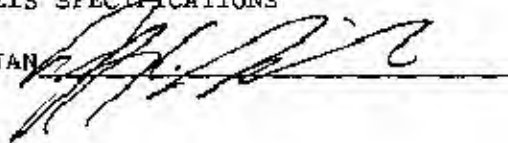
TEST NO: STL06602

572F SID SN066 L.THORAX CAL02

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	25.0 %
PENDULUM VELOCITY	4.21 - 4.33 M/S	4.29 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	37.2 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	40.5 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	20.3 G

TEST MEETS SPECIFICATIONS

TECHNICIAN



RUN NUMBER: 020403.1322;1

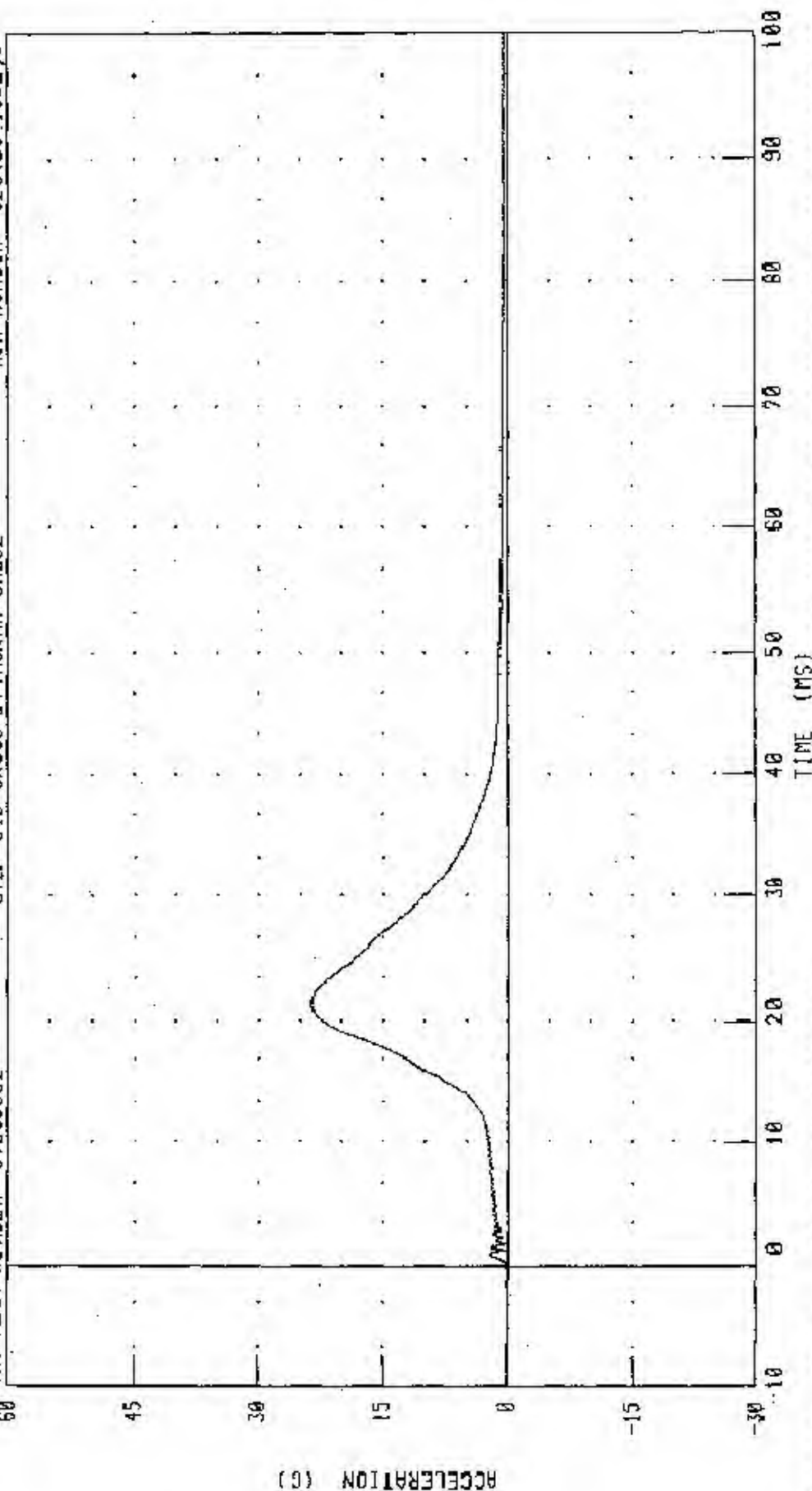
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

PENDULUM DECELERATION

TRC TEST NUMBER: STL066802

572F SID SN066 L THORAX CAL02

RUN NUMBER: 020403.1322.1



CHANNEL: PENXC FILTER: CH. CLASS 1000

PEAK DATA: 25.57 G @ 21.20 MS; 0.02 G @ -0.96 MS

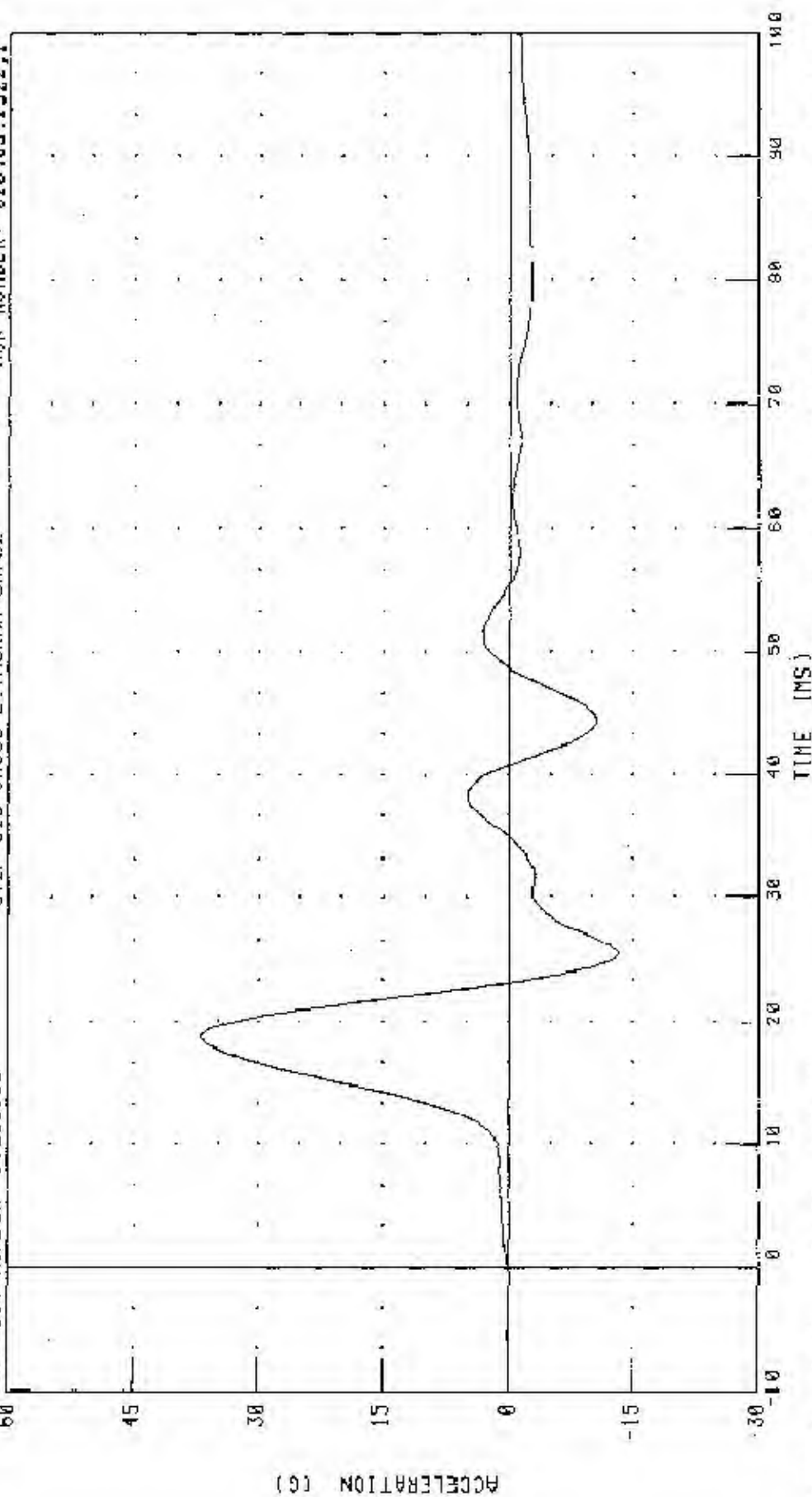
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LEFT UPPER RIB ACCELERATION Y AXIS

TRC TEST NUMBER: STL06602

572F SID SN066 L.THORAX CAL02

RUN NUMBER: 020405.1322,1



CHANNEL: LURYG FILTER: FIR 100

PEAK DATA: 57.25 G @ 18.75 MS; -15.21 G @ 25.65 MS

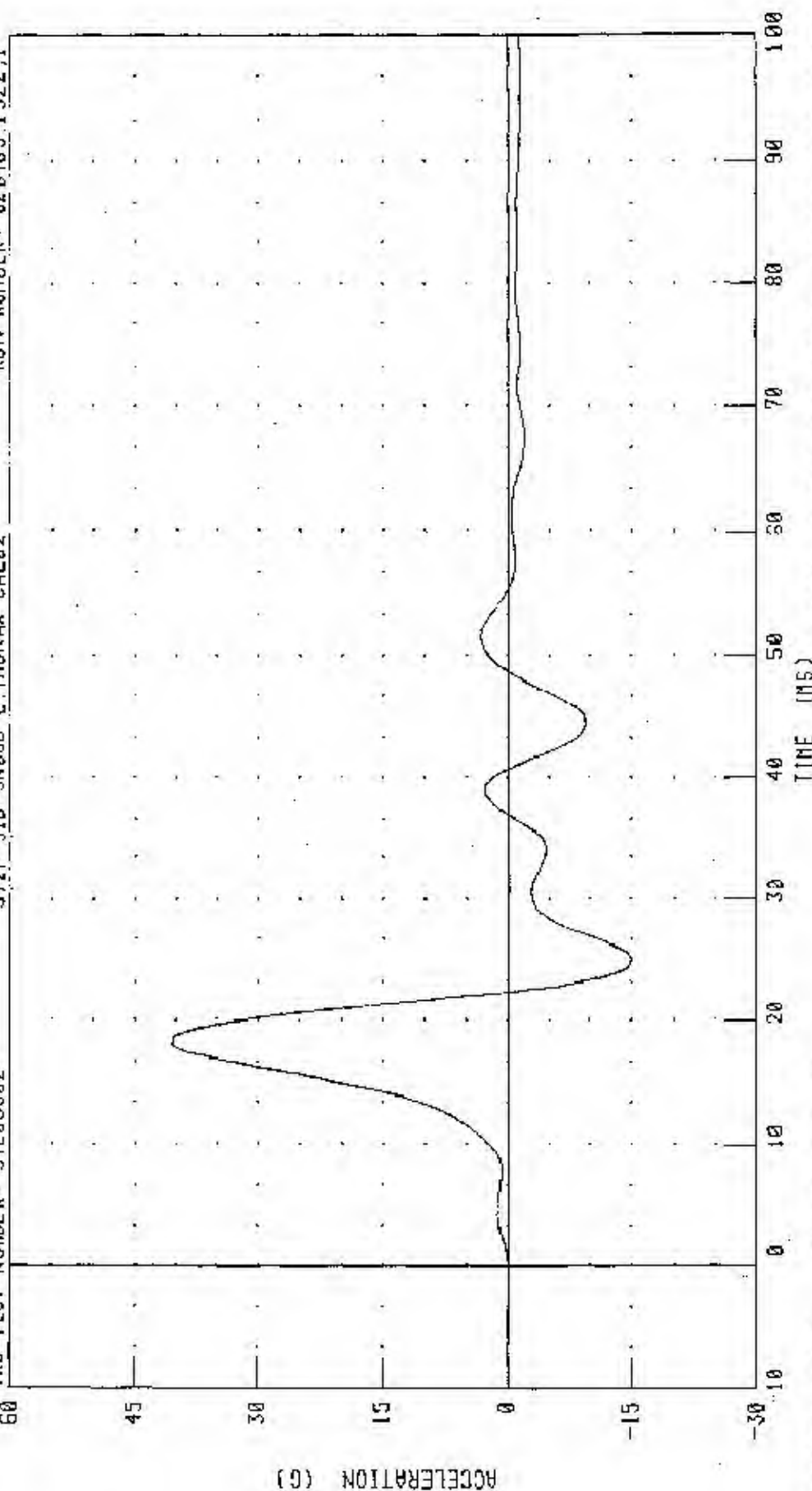
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LEFT LOWER RIB ACCELERATION Y AXIS

TRC TEST NUMBER: STL06602

572F SID SN066 L THORAX CAL02

RUN NUMBER: 020403.1322.1



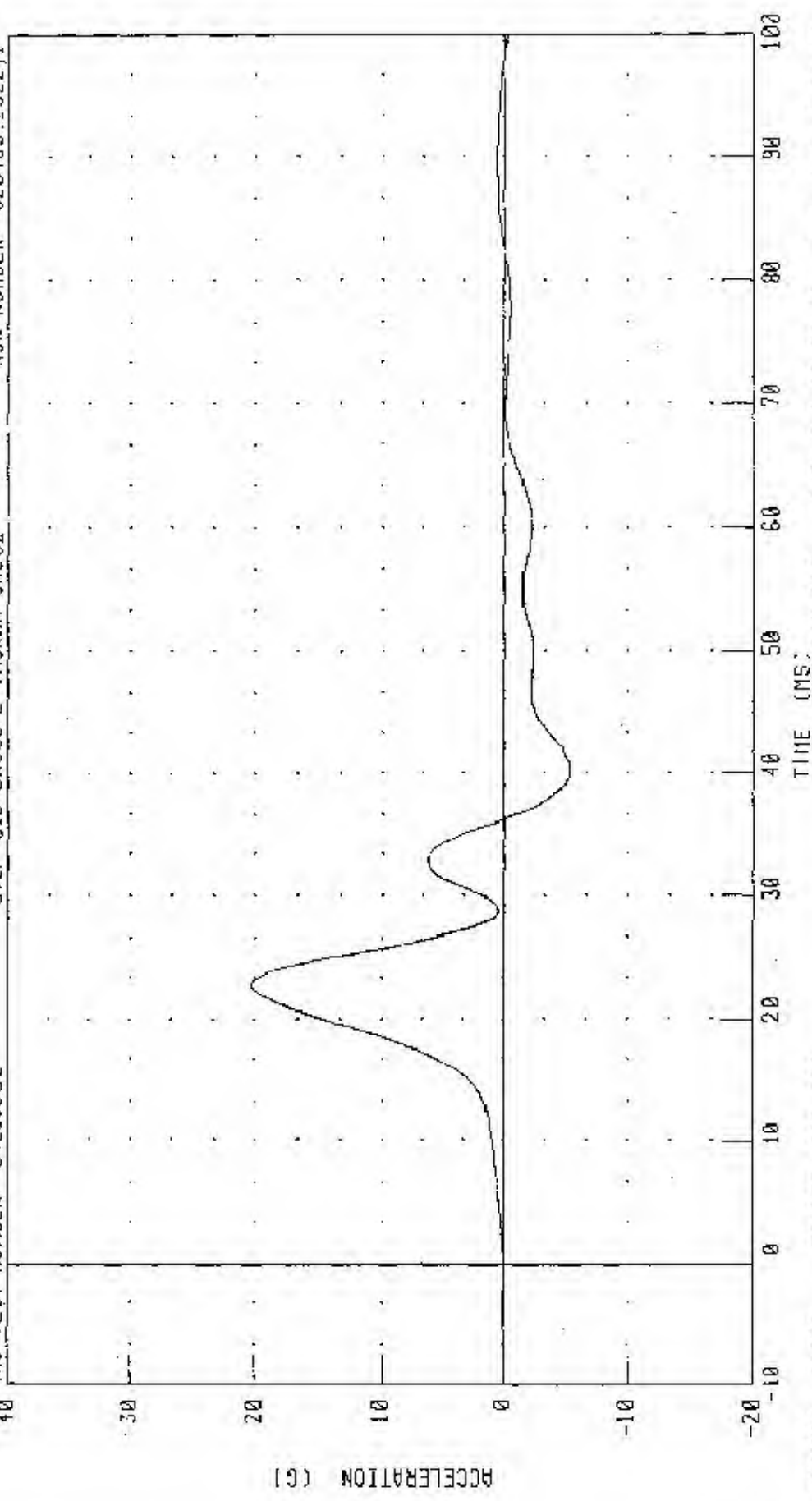
CHANNEL: LLRYG FILTER: FIR 100

PEAK DATA: 40.51 0 0 18.13 MS, -15.00 0 0 25.00 MS

PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LOWER SPINE ACCELERATION Y AXIS

TRC TEST NUMBER: 572F SID SN066 L THORAX CAL02 RUN NUMBER: 020403.1322.1



CHANNEL: 112YG FILTER: FIR 120 PEAK DATA 20.30 G @ 22.50 MS; -5.28 G @ 40.63 MS

TRANSPORTATION RESEARCH CENTER INC.

THORACIC SHOCK ABSORBER TESTS

SIDE IMPACT DUMMY

03-FEB-03

TRC INC.

572F SN066 DAMPER TEST CAL02

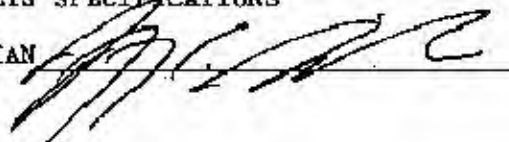
TEST NUMBERS: DP06602A, DP06602B, DP06602C

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE		18.9 - 25.5 C	21.7 DEG. C
RELATIVE HUMIDITY		10 - 70 %	46.0 %
VELOCITY	FORCE	667 - 925 N	797 N
2.70 M/S	DISPLACEMENT	29.7 - 34.5 MM	29.9 MM
VELOCITY	FORCE	1733 - 2100 N	1877 N
4.26 M/S	DISPLACEMENT	31.6 - 37.2 MM	35.9 MM
VELOCITY	FORCE	3703 - 4402 N	4387 N
6.07 M/S	DISPLACEMENT	33.3 - 39.5 MM	37.8 MM

DAMPER SETTING = 5.0

TEST MEETS SPECIFICATIONS

TECHNICIAN



RUN NUMBER: 020303.0731;1

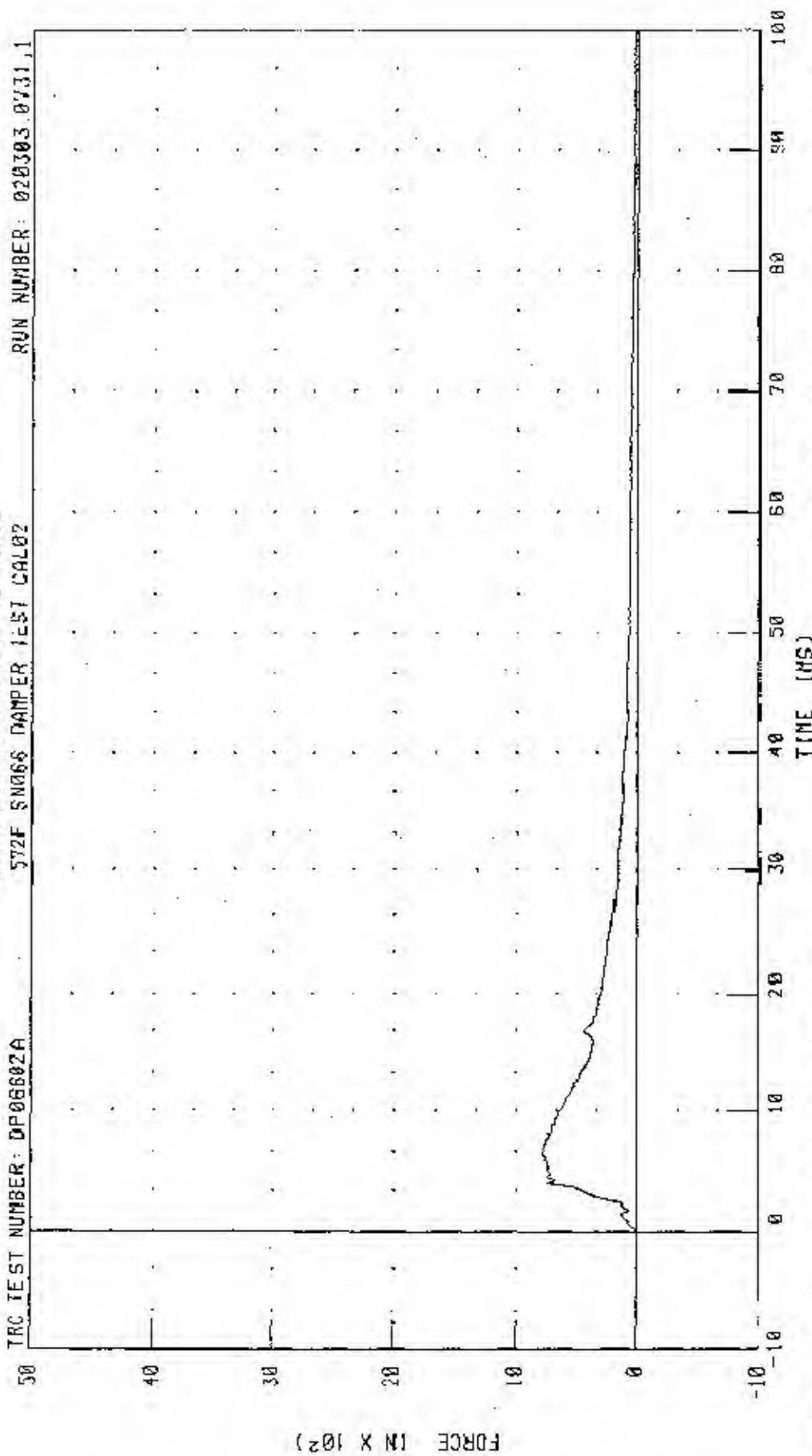
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP06802A

572F SN066 DAMPER TEST CAL02

RUN NUMBER: 020303.0731.1



CHANNEL: DA1PF FILTER: CH CLASS 1000

PEAK DATA: 796.77 N @ 6.48 MS, -2.09 V @ -10.00 MS

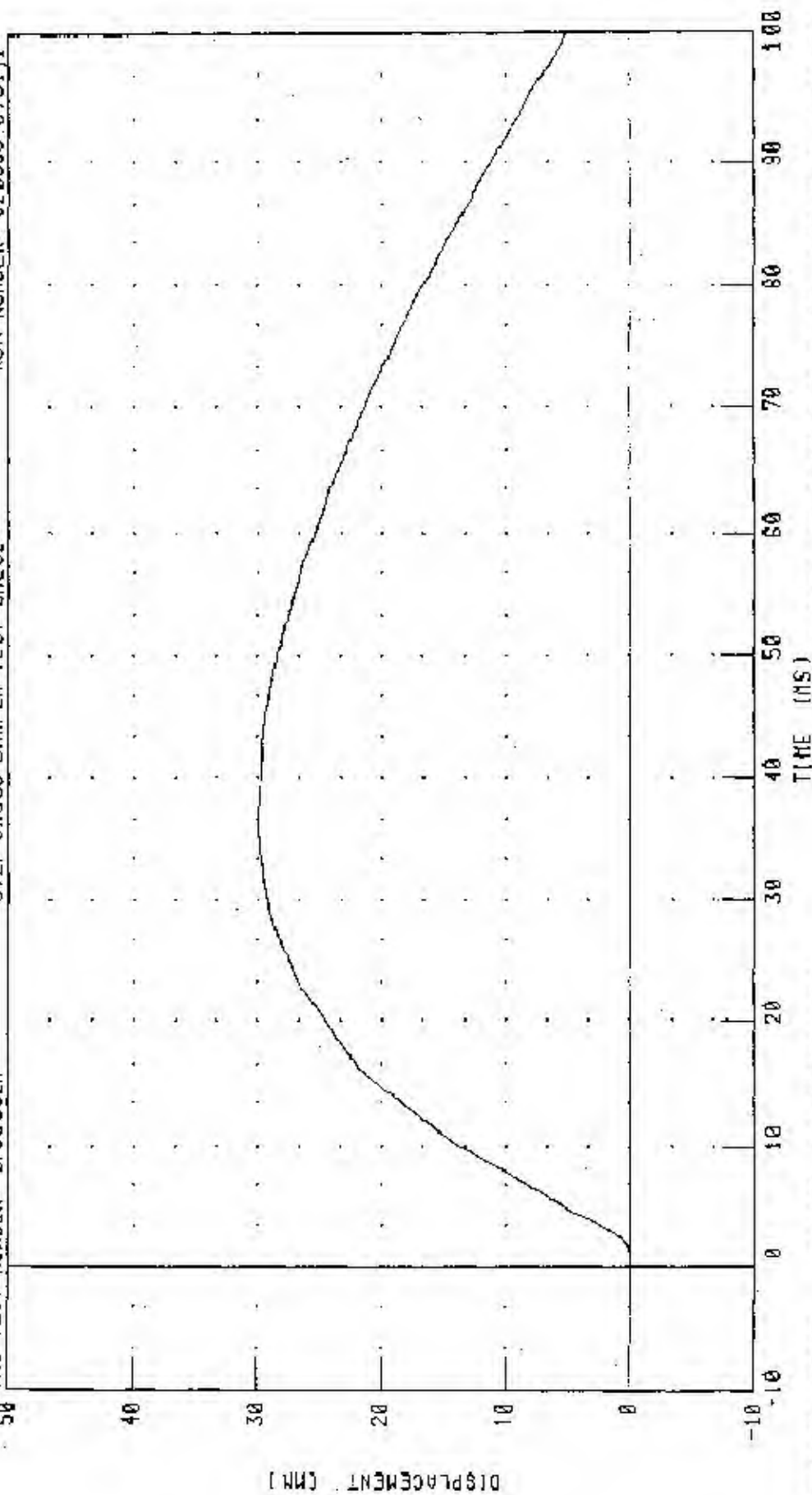
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (3.0 N/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER: DP08602A

572F SN066 DAMPER TEST CAL02

RUN NUMBER: 020303 0731.1



CHANNEL: CSTYD FILTER: CH. CLASS 1800

TIME (MS)

PEAK DATA 29.94 MM @ 36.24 MS, 0.00 MM @ -4.40 MS

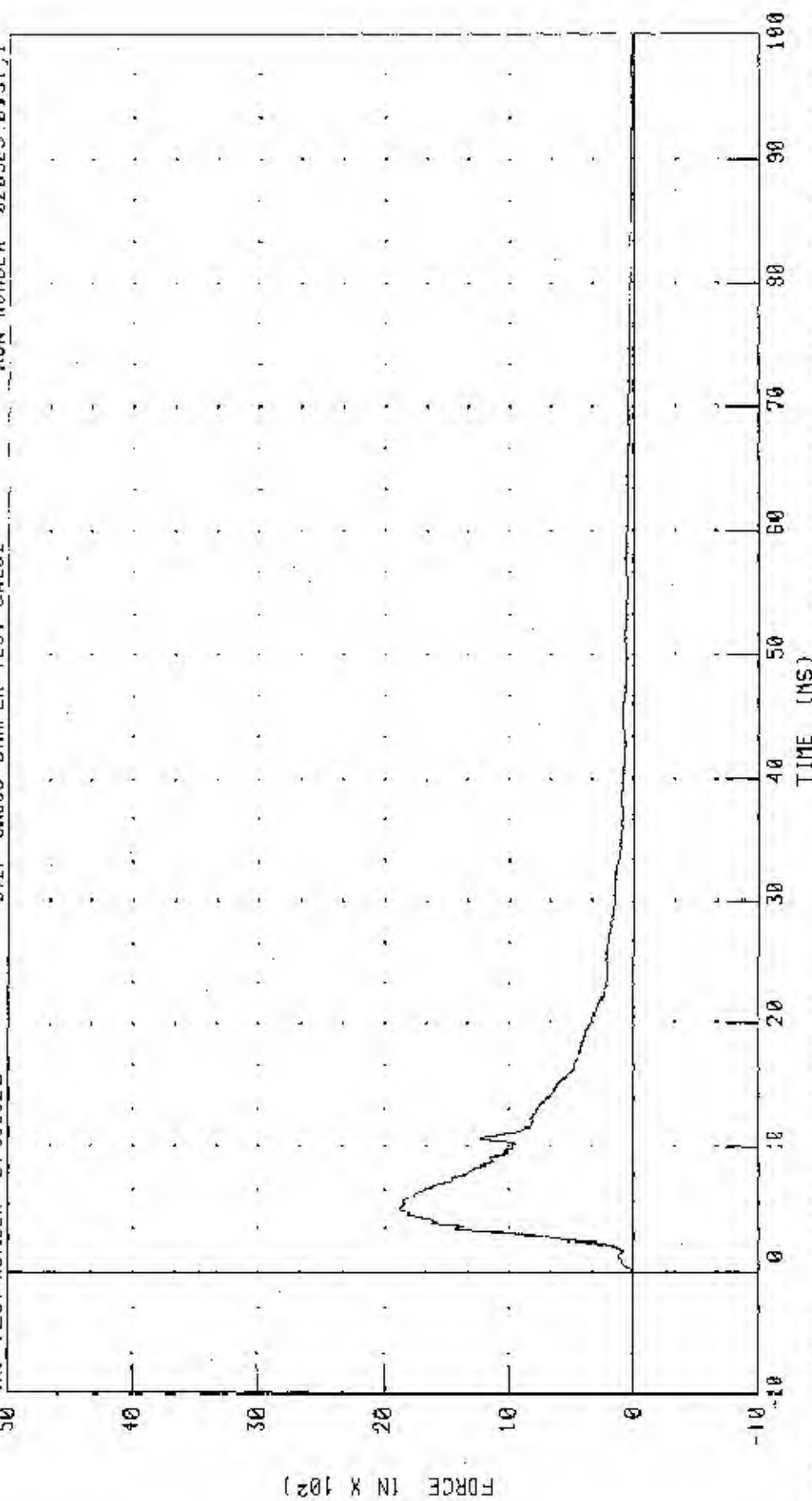
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (4.3 N/SEC)

SHOCK ABSORBER RESISTIVE FORCE

IRC TEST NUMBER: DP06802B

572F SN066 DAMPER TEST CAL02

RUN NUMBER 020303 0731.1



CHANNEL: DAMPF FILTER: CIII CLASS 1000

PEAK DATA: 1876.76 N @ 5.12 MS, -2.32 N @ -0.95 MS

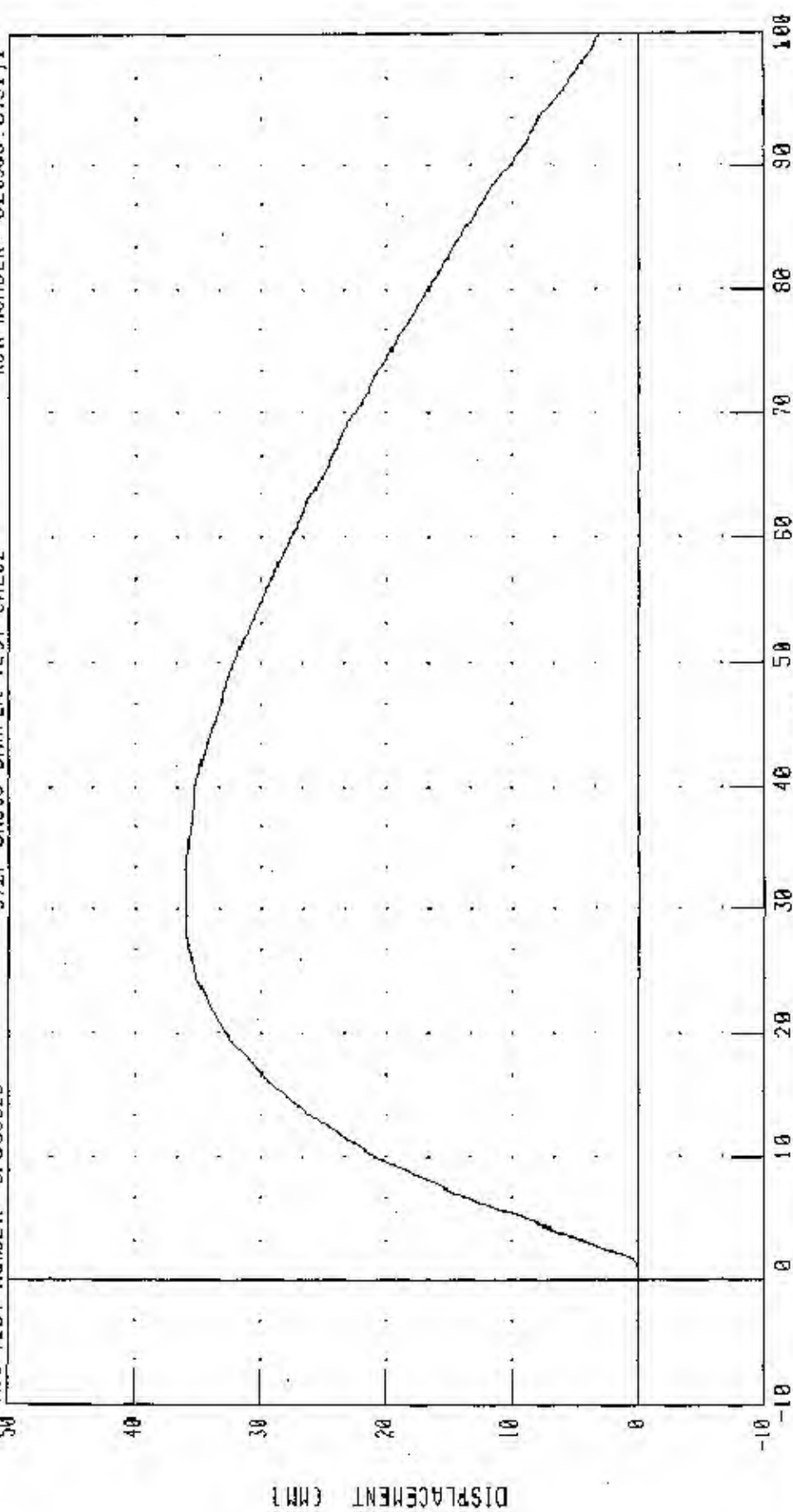
PART 572-F S I D THORACIC SHOCK ABSORBER CALIBRATION (4.3 N/SEC)

SHOCK ABSORBER DISPLACEMENT

TRC TEST NUMBER DP06602B

572F 5N066 DAMPER TEST CAL02

RUN NUMBER: 020303.0731,1



CHANNEL C5Y3 FILTER: CH. CLASS 1000

PEAK DATA: 35.94 MS; 0.00 MM; -7.68 MS

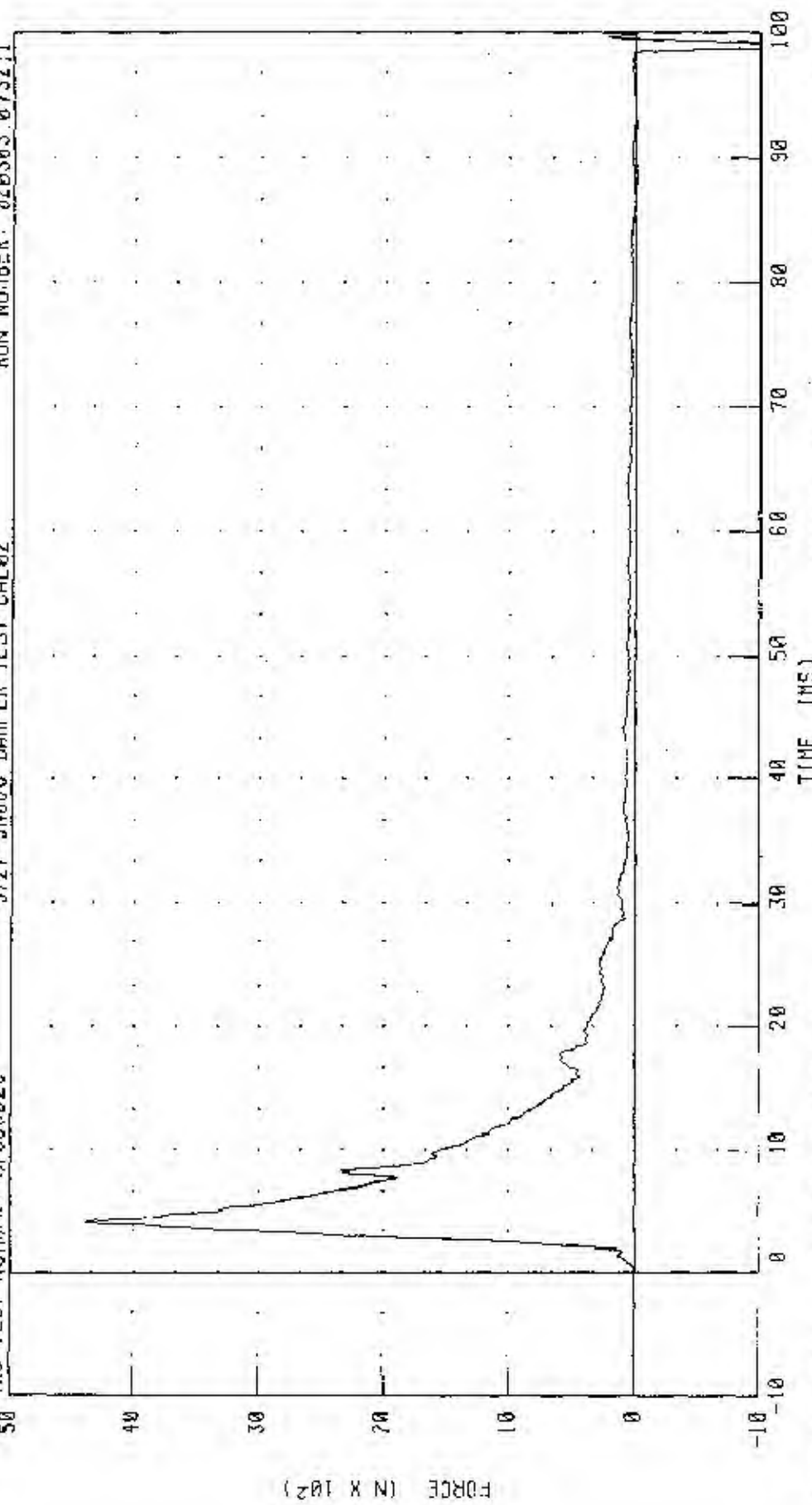
PART 572-- S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER RESISTIVE FORCE

TRC TEST NUMBER: DP08B02C

572F SN086 DAMPER TEST CAL02

RUN NUMBER: 020303 0732.1



PEAK DATA: 4387.36 N @ 4.16 MS; -1635.86 N @ 98.88 MS

CHANNEL: DAMPF FILTER: CH. CLASS 1000

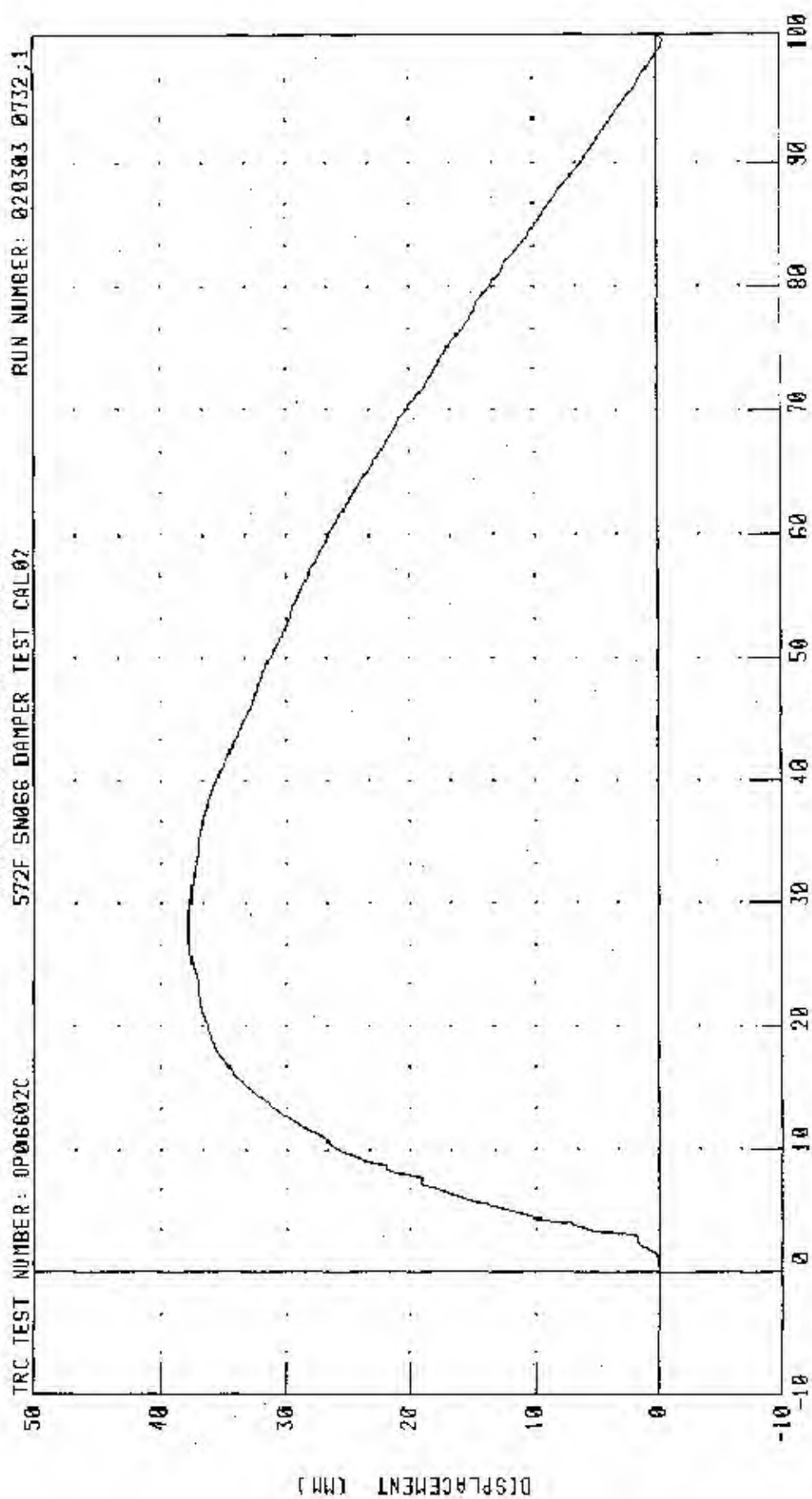
PART 572-F S.I.D. THORACIC SHOCK ABSORBER CALIBRATION (6.1 M/SEC)

SHOCK ABSORBER DISPLACEMENT

572F SN066 DAMPER TEST CAL02

TRC TEST NUMBER: 0P06602C

RUN NUMBER: 020303 0732;1



TIME (MS)

CHANNEL: CSTYD FILTER: CH CLASS 1000

PEAK DATA: 37.76 MM @ 27.76 MS; -0.52 MM @ 99.36 MS

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

SID PART 572B

CAL DATE: 03-Feb-03

TRC, INC.

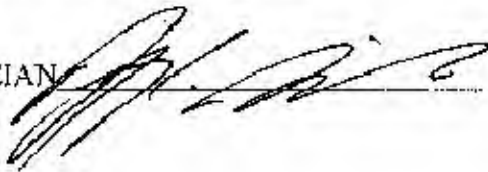
TEST NO: LF06602

572B SN 066 TORSO FLEX CAL 02

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.6 DEG. C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	46 %
FORCE AT 0 DEG. FLEXION	-27 - 27 N	0 N
FORCE AT 20 DEG OF FLEXION	98 - 151 N	137.1 N
FORCE AT 30 DEG OF FLEXION	151 - 205 N	189.1 N
FORCE AT 40 DEG OF FLEXION	205 - 258 N	241.1 N
NET RETURN ANGLE AFTER 3 MINUTES	< 12 DEG.	6 Deg

TEST MEETS SPECIFICATIONS

TECHNICIAN



Transportation Research Center Inc.

572B Abdomen Compression Test

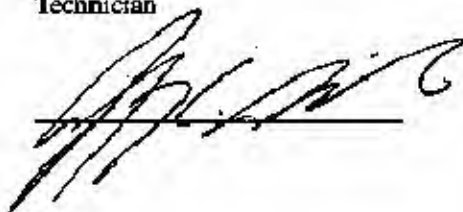
SID Serial No. 066 Calibration No. 02 - 1

Test Date 01/30/2003

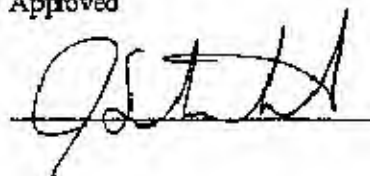
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Displacement Rate	6.35 - 8.89 mm/s	7.1 - 8.0 mm/s	Yes
Data Within Required Corridor	Yes	Yes	Yes

Comments:

Technician



Approved



01/30/2003 15:18:25 9

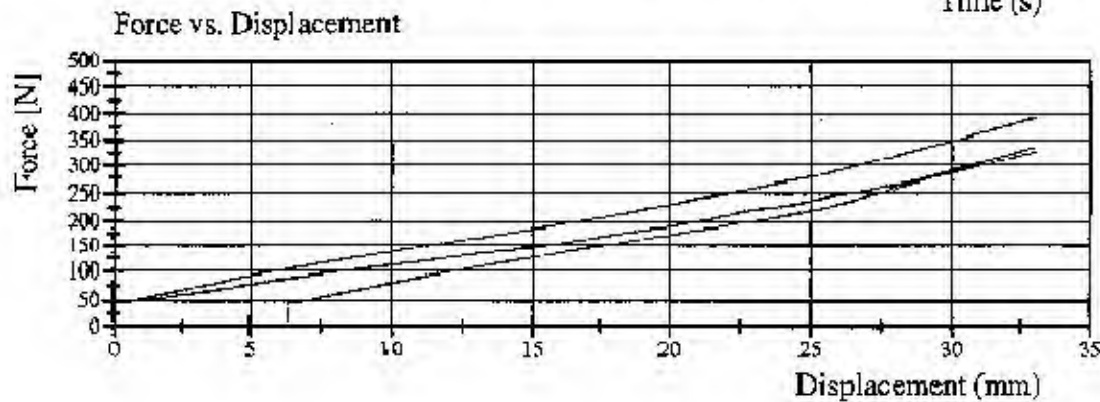
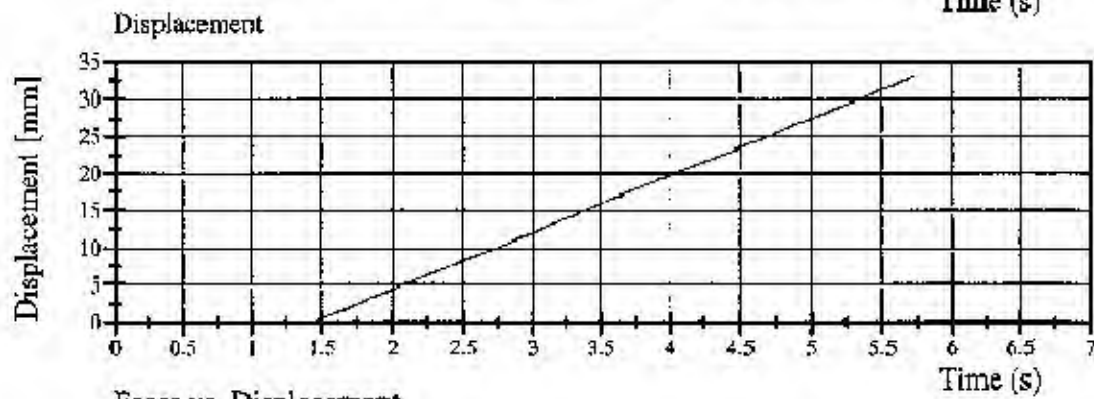
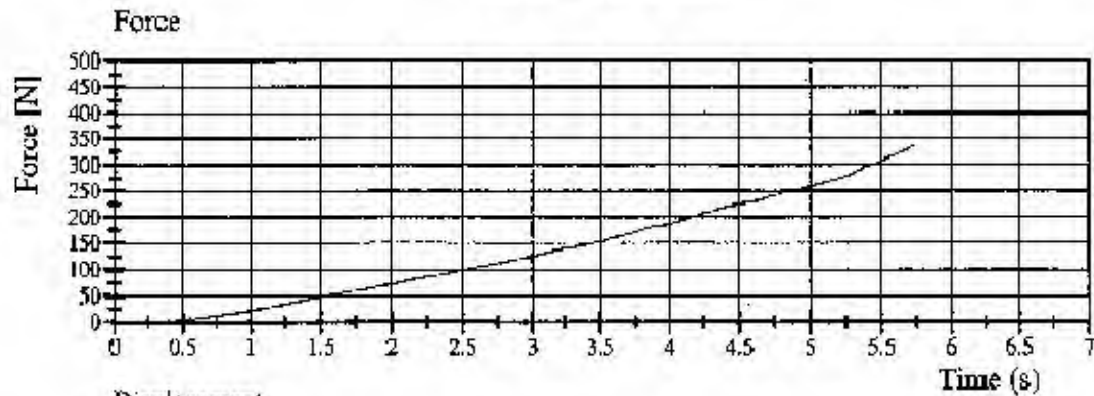


Transportation Research Center Inc.

572B Abdomen Compression Test

SID Serial No. 066 Calibration No. 02 - 1

Test Date 01/30/2003



01/30/2003 15:18:25 9



TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

04-FEB-03

LEFT SIDE CONFIGURATION

TRC INC.

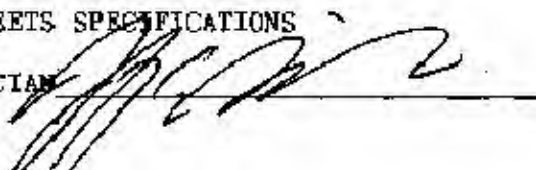
TEST NO: SPL06602

572F SN066 LEFT PELVIS CAL02

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.7 DEG. C
RELATIVE HUMIDITY	10 - 70 %	29.0 %
PENDULUM VELOCITY	4.21 - 4.33 M/S	4.29 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	46.8 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	6.1 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN



RUN NUMBER: 020403.1358;1

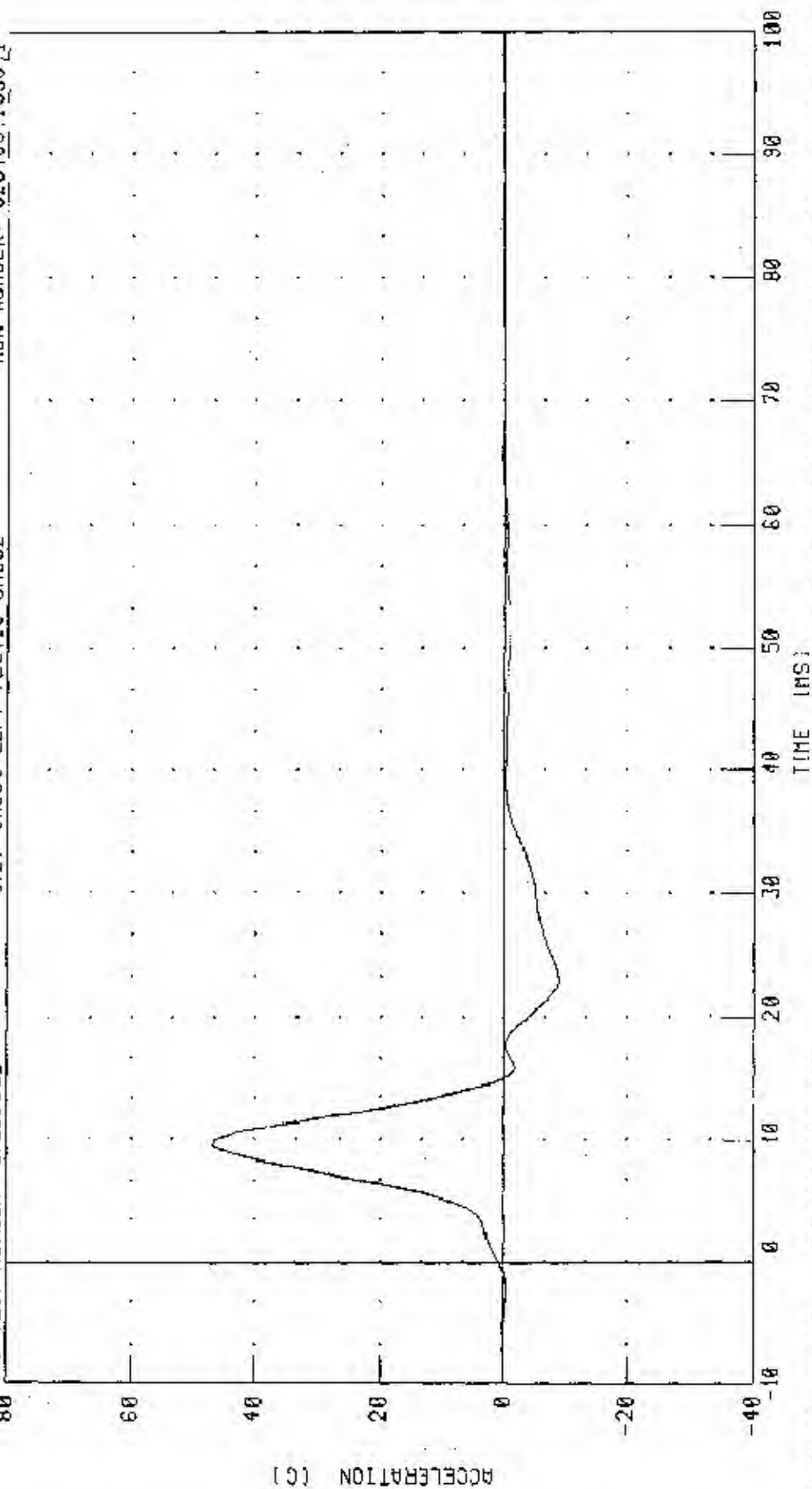
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PELVIS ACCELERATION Y AXIS

TRC TEST NUMBER: SPL06602

572F SN066 LEFT PELVIS CAL02

RUN NUMBER: 020403.1350.1



CHANNEL: PEVYC

FILTER: FIR 100

TIME (MS)

PEAK DATA: 46.84 G @ 9.37 MS. -9.03 G @ 23.13 MS

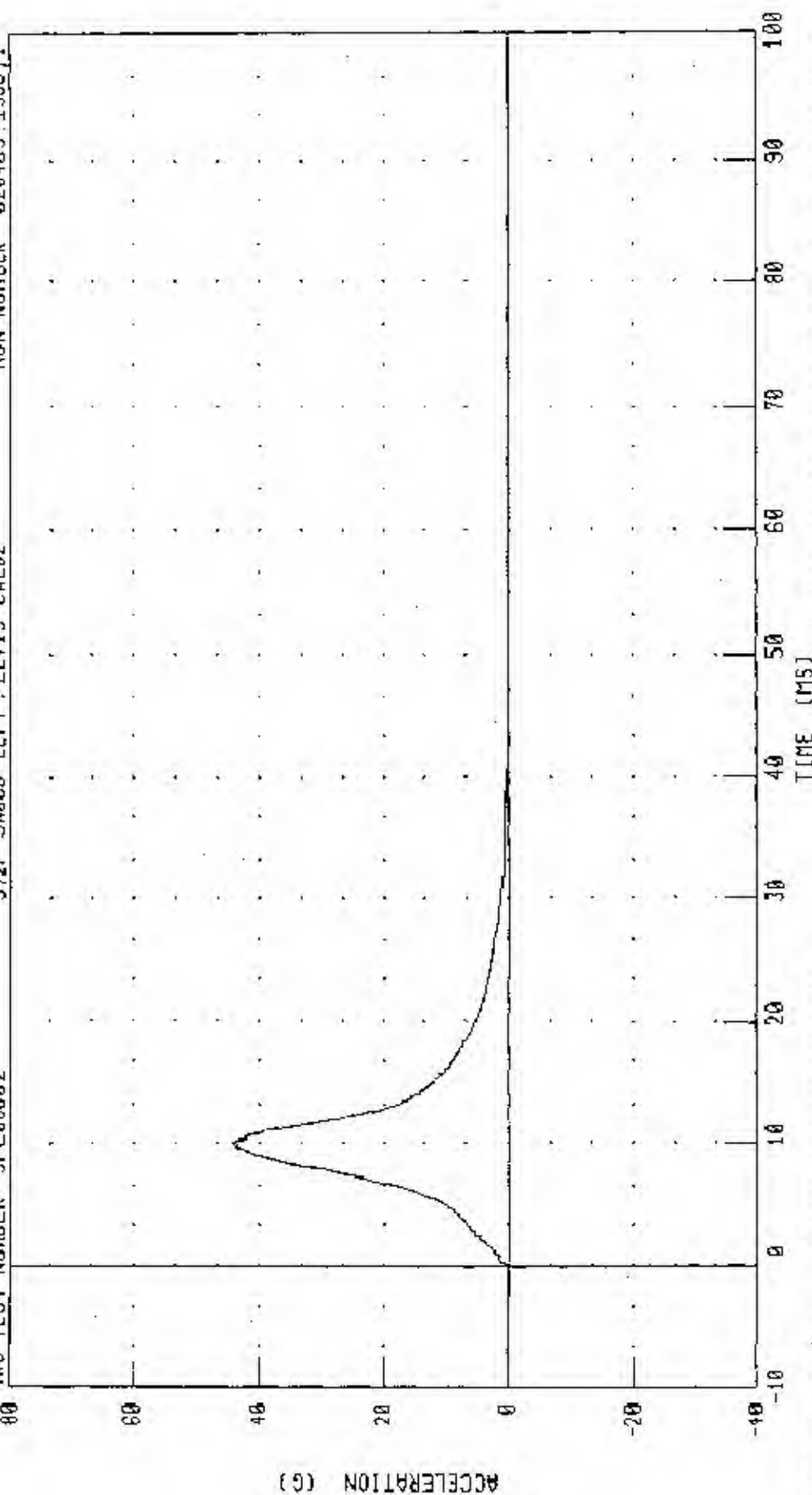
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PENDULUM DECELERATION

TRC TEST NUMBER - SPL06602

572F SMOGS LEFT PELVIS CAL02

RUN NUMBER - 020403.1358.1



CHANNEL - PENXC FILTER - C-1 CLASS 1000

PEAK DATA: 44.12 G @ 10.16 MS; -0.22 G @ 61.36 MS

Calibration Test Results

Post-Test

STD: 065

Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Thorax Impact Test:	The lateral thorax passed all impact test requirements.
Thoracic Shock Absorber:	The thoracic shock absorber was not retested at this time.
Lumbar Flexion Test:	The dummy met the lumbar flexion test requirements.
Abdominal Compression Test:	The abdomen met the compression test requirements.
Pelvis Impact Test:	The lateral pelvis passed all impact test requirements.

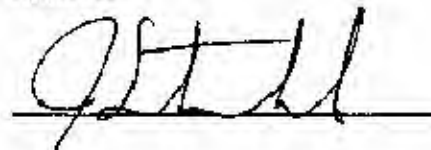
Transportation Research Center Inc.
572F SID Dummy
External Dimensions
Serial No. 065 Calibration No. 03

Test Parameter	Dimension	Specification	Results	Pass
Seated Height	SH	889.0 - 909.3 mm	893 mm	Yes
Knee Pivot From Backline	KH	510.5 - 525.8 mm	515 mm	Yes
Knee Pivot From Floor	KV	490.2 - 505.5 mm	499 mm	Yes
Hip Width	HW	355.6 - 391.2 mm	372 mm	Yes
Rib Height	RH	501.7 - 520.7 mm	510 mm	Yes
Rib From Backline	RD	228.6 - 241.3 mm	237 mm	Yes
Top Rib Width From C/L	RW-1	165.1 - 180.3 mm	174 mm	Yes
Bottom Rib Width From C/L	RW-2	165.1 - 180.3 mm	175 mm	Yes
Difference Between Top & Bottom Rib Width from C/L		<= 2.5 mm	1.0 mm	No

Technician



Approved



TRE

TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

14-FEB-03

LEFT SIDE CONFIGURATION

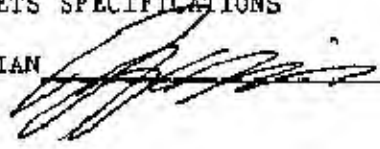
TRC INC.

TEST NO: STL06503

572F SID SN065 L.THORAX CAL03

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	31.0 %
PENDULUM VELOCITY	4.21 - 4.33 M/S	4.29 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	42.3 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	39.6 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	19.1 G

TEST MEETS SPECIFICATIONS

TECHNICIAN 

RUN NUMBER: 021403.1048;1

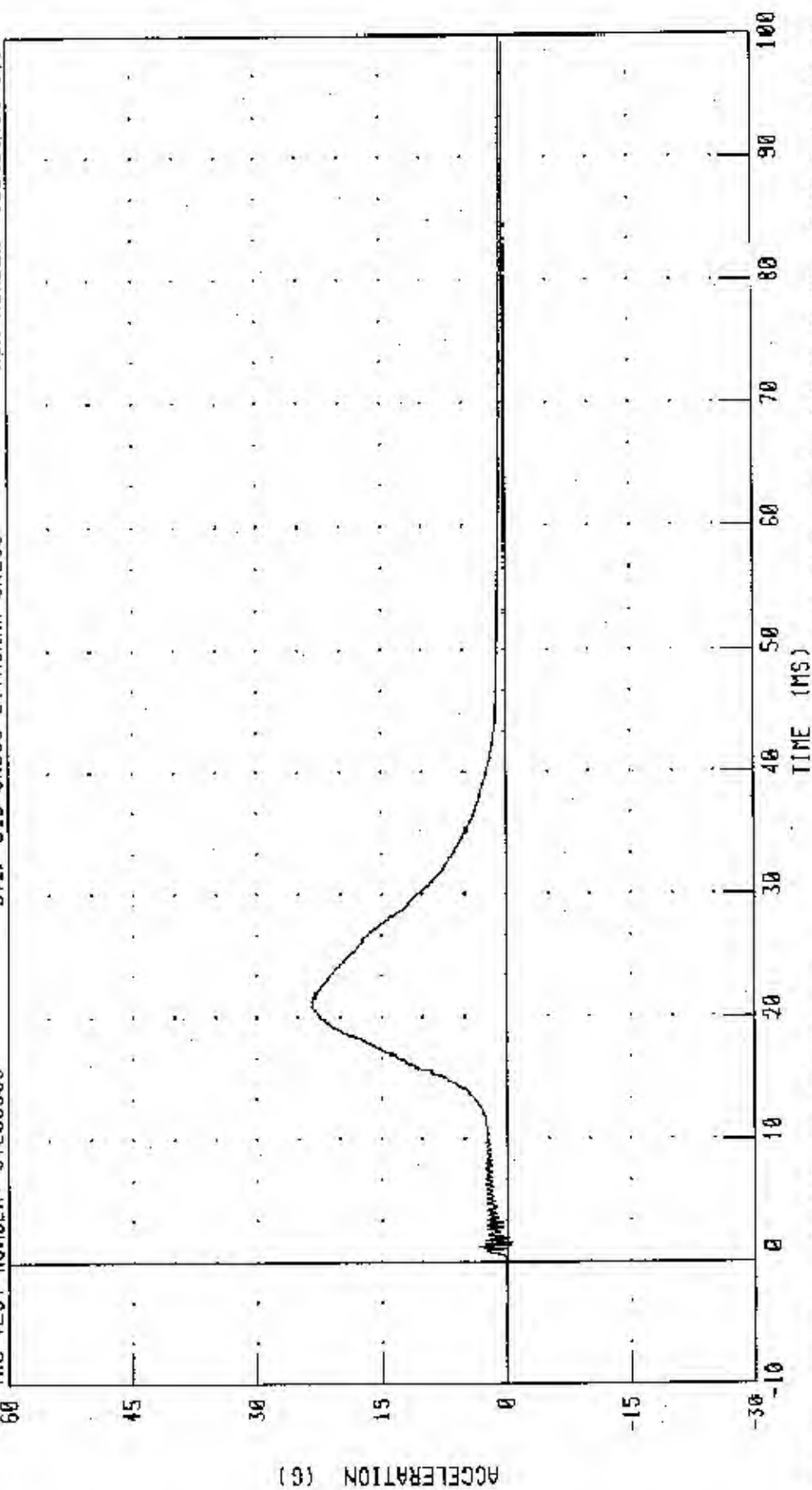
PART 572-F S.I. 0. THORAX CALIBRATION - (LEFT SIDE IMPACT)

PENOVULUM DECELERATION

TRC TEST NUMBER: STL06503

572F SID SN065 L.THORAX CAL03

RUN NUMBER: 021403.1049.1



CHANNEL: PENXG FILIER: CH. CLASS 1000

PEAK DATA: 23.32 G @ 21.28 MS, -0.53 G @ 1.52 MS

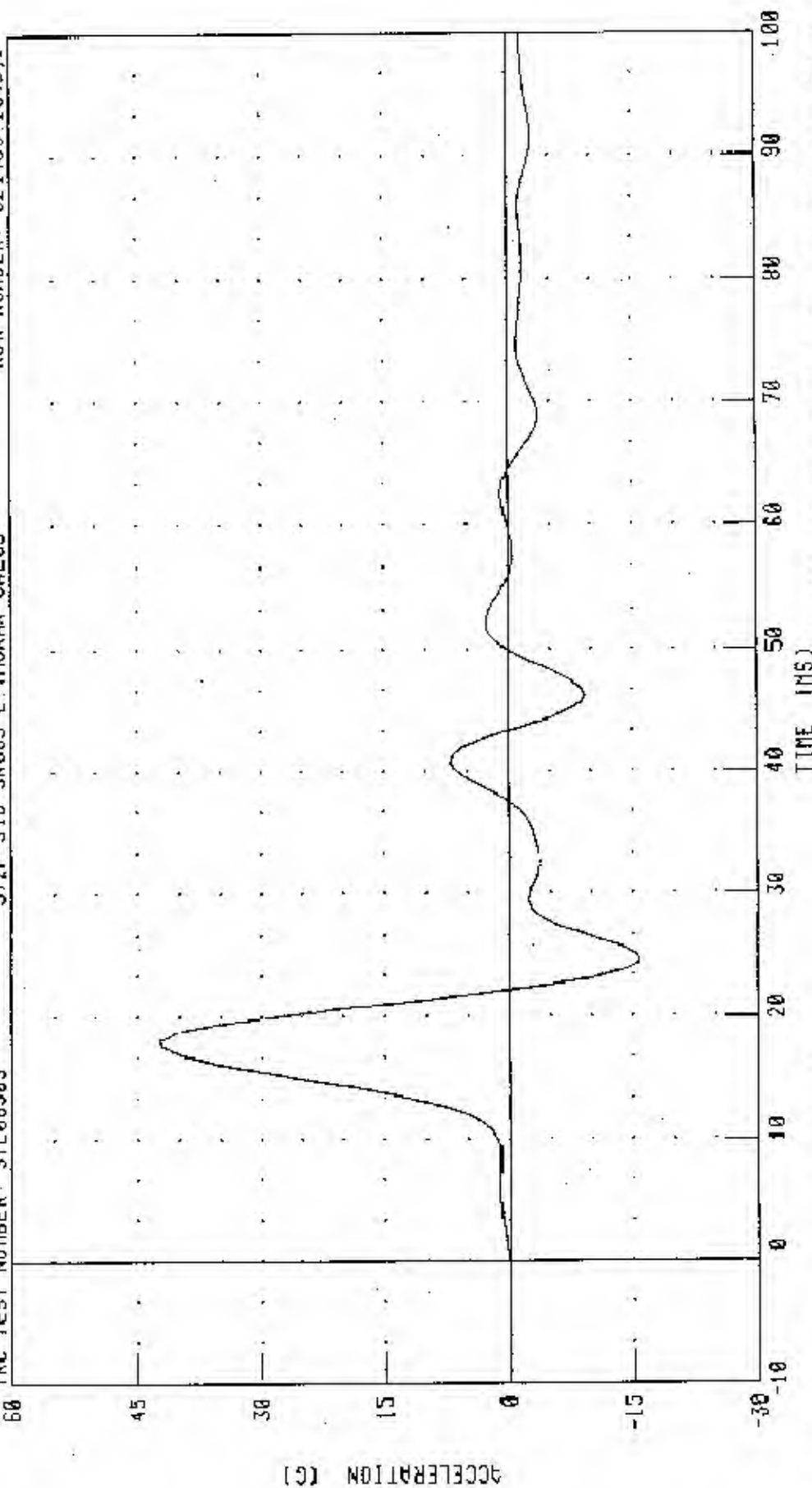
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LEFT UPPER R12 ACCELERATION Y AXIS

TRC TEST NUMBER: STL06503

572F SID SN085 L THORAX CAL03

RUN NUMBER: 021403 1049,1



CHANNEL: LURYG FILTER: FIR 100

PEAK DATA: 42.26 G @ 10.13 MS, -15.75 G @ 24.38 MS

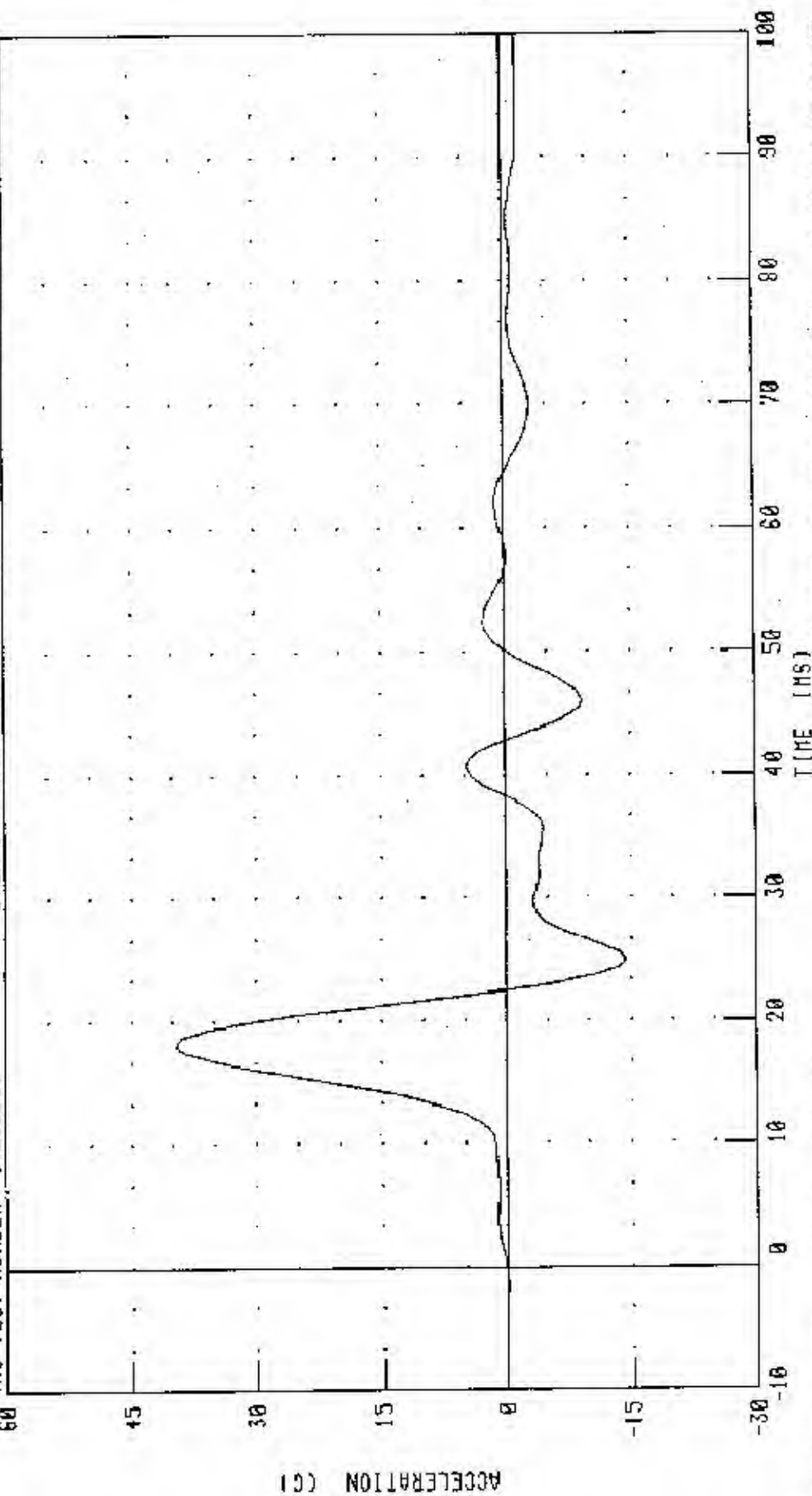
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LEFT LOWER RIB ACCELERATION Y AXIS

TRC TEST NUMBER: STL06503

572F SID SN065 L THORAX CAL03

RUN NUMBER: 021403.1049.1



CHANNEL: LLRYG FILTER: FIR 100

PEAK DATA: 39.53 S @ 18.13 MS, -14.45 G @ 25.00 MS

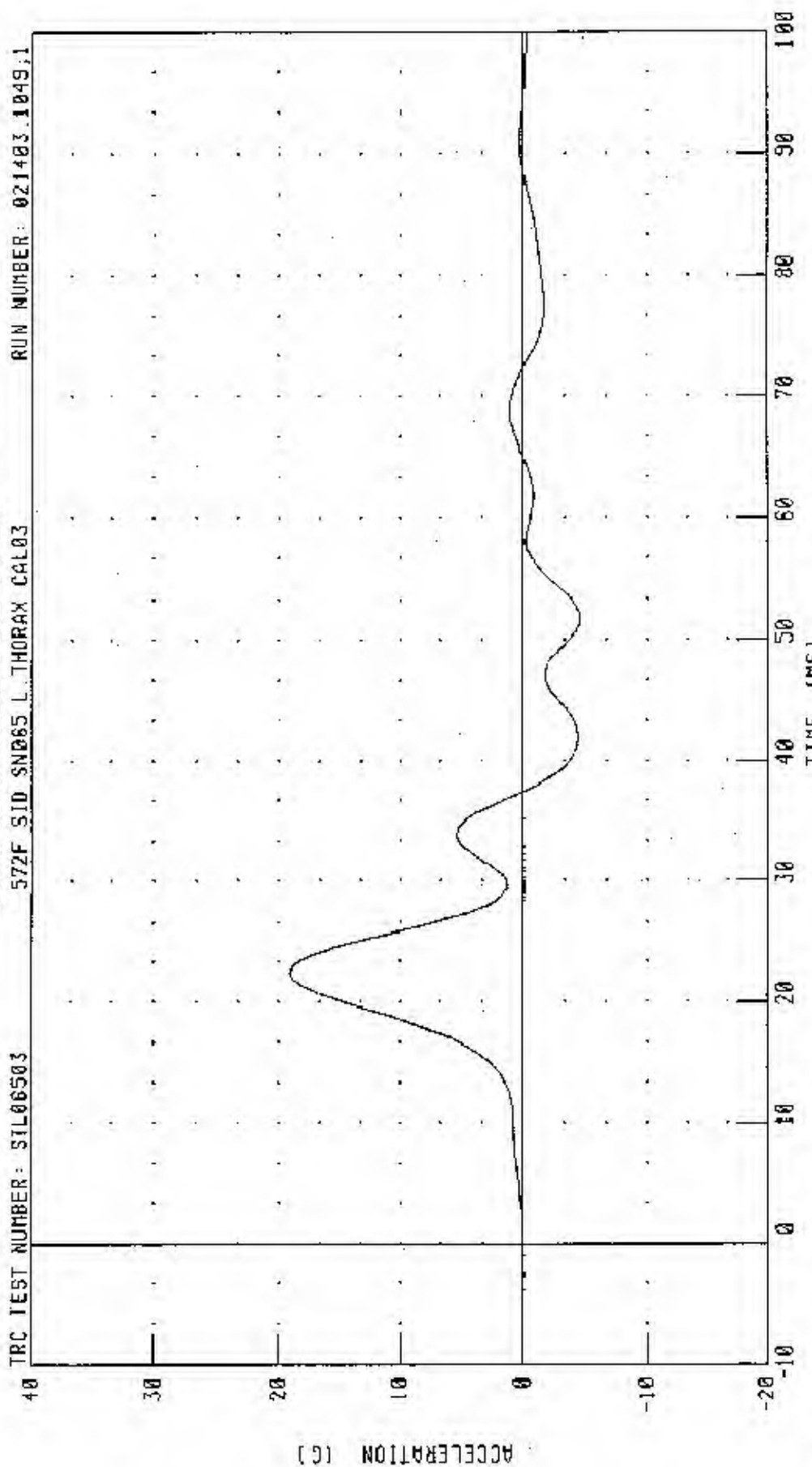
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LOWER SPINE ACCELERATION Y AXIS

TRC TEST NUMBER: STL06503

572F SID SNO65 L THORAX CAL03

RUN NUMBER: 021403.1049,1



CHANNEL: T12YC FILTER: FIR 100

PEAK DATA: 19 14 0 22 50 MS, -4 61 0 51 88 MS

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

SID PART 572B

CAL DATE: 14-Feb-03

TRC, INC.

TEST NO: 065C03LF1

572B SN 065 TORSO FLEX CAL 03

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	31 %
FORCE AT 0 DEG. FLEXION	-27 - 27 N	0 N
FORCE AT 20 DEG OF FLEXION	98 - 151 N	142.3 N
FORCE AT 30 DEG OF FLEXION	151 - 205 N	186.8 N
FORCE AT 40 DEG OF FLEXION	205 - 258 N	240.2 N
NET RETURN ANGLE AFTER 3 MINUTES	< 12 DEG.	7 Deg

TEST MEETS SPECIFICATIONS

TECHNICIAN



Transportation Research Center Inc.

572B Abdomen Compression Test

SID Serial No. 065 Calibration No. 03 - 1

Test Date 02/14/2003


Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Displacement Rate	6.35 - 8.89 mm/s	7.0 - 7.9 mm/s	Yes
Data Within Required Corridor	Yes	Yes	Yes

Comments:

Technician



Approved



02.14.2003 12:51:30 21

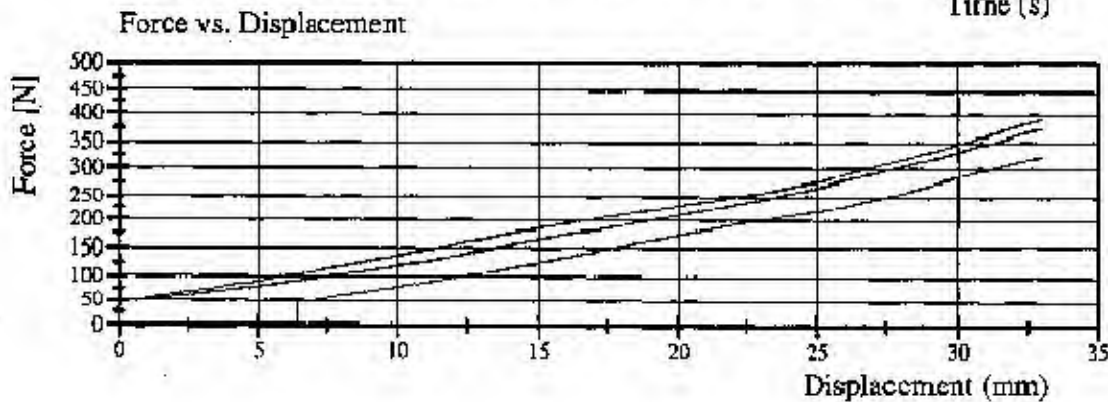
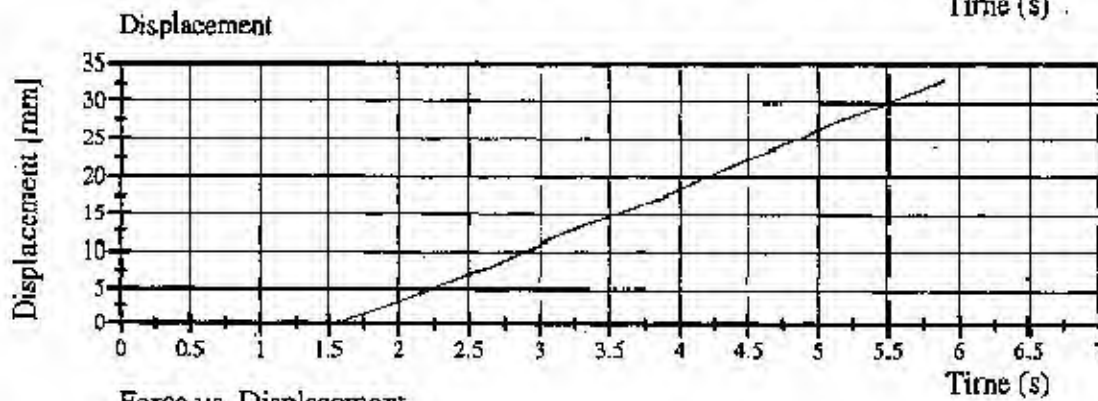
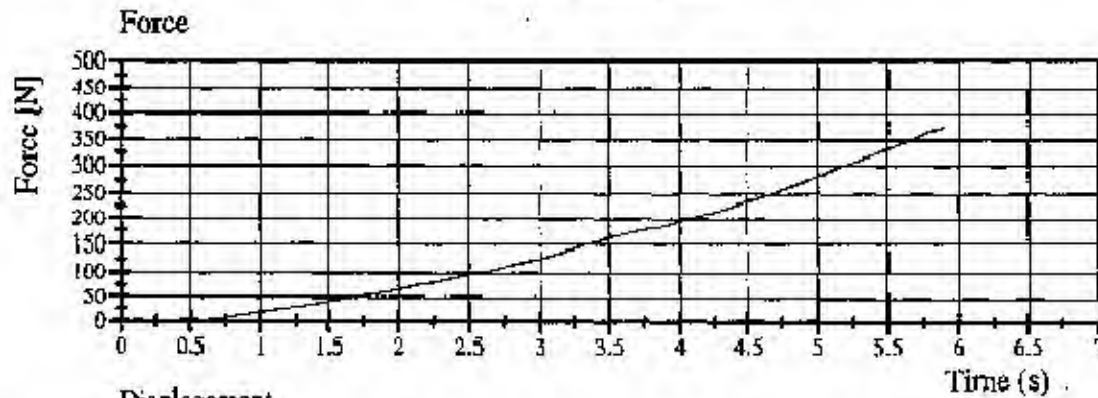


Transportation Research Center Inc.

572B Abdomen Compression Test

SID Serial No. 065 Calibration No. 03 - 1

Test Date 02/14/2003



02.14.2003 12:51:32 21



TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

14-FEB-03

LEFT SIDE CONFIGURATION

TRC INC.

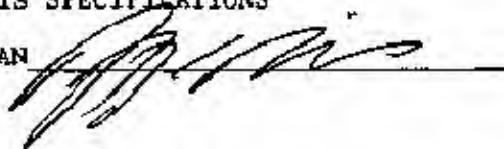
TEST NO: SPL06503

572F SN065 LEFT PELVIS CAL03

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	31.0 %
PENDULUM VELOCITY	4.21 - 4.33 M/S	4.29 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	46.6 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	6.0 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN



RUN NUMBER: 021403.1031;1

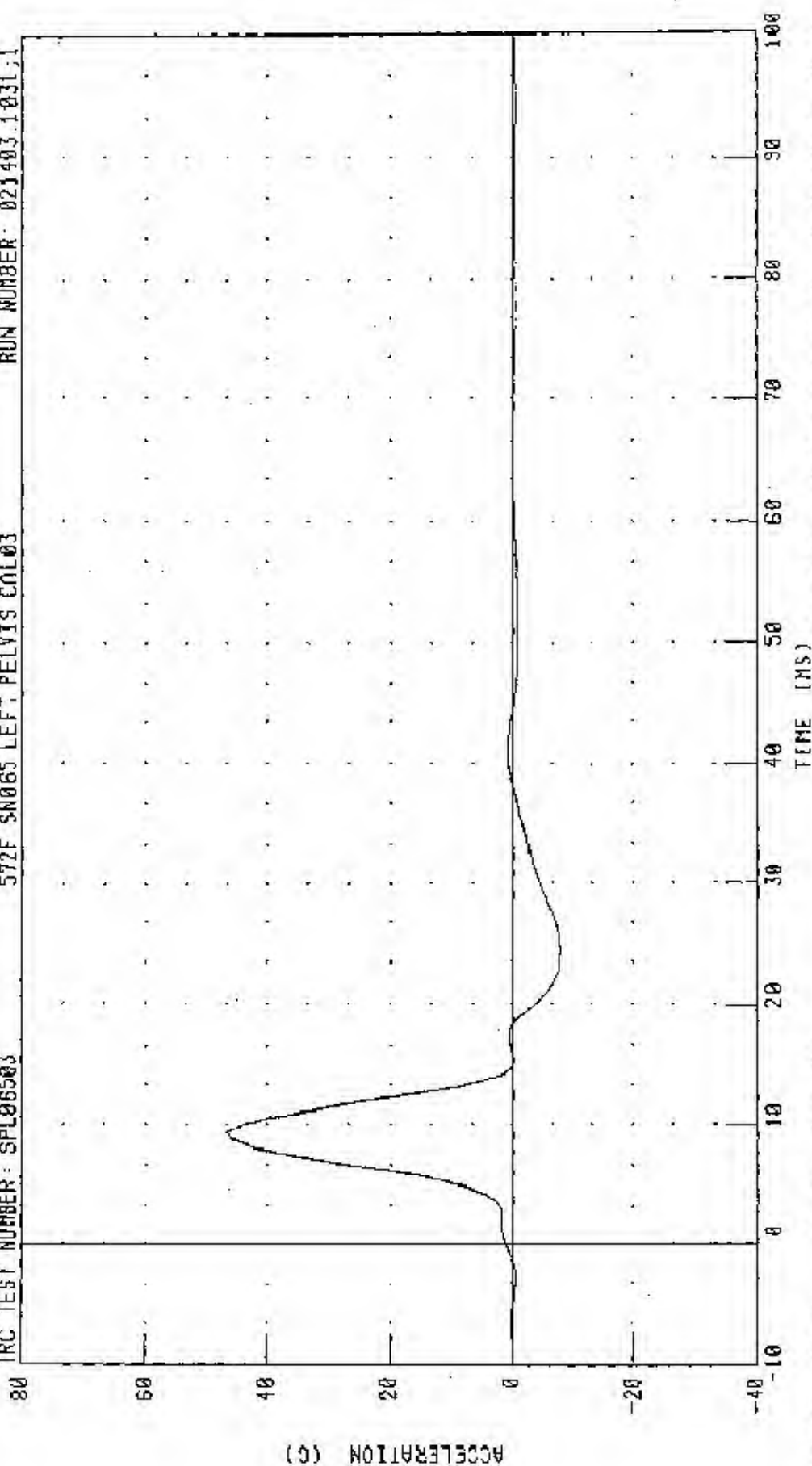
PART 572-F 5.1.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PELVIS ACCELERATION Y AXIS

IRC TEST NUMBER: SPL06503

572F SN065 LEFT PELVIS COL03

RUN NUMBER: 021403.103LJ1



CHANNEL: PEVYG FILTER: FIR 100

PEAK DATA: 46.63 G @ 9.37 MS; -8.12 G @ 24.38 MS

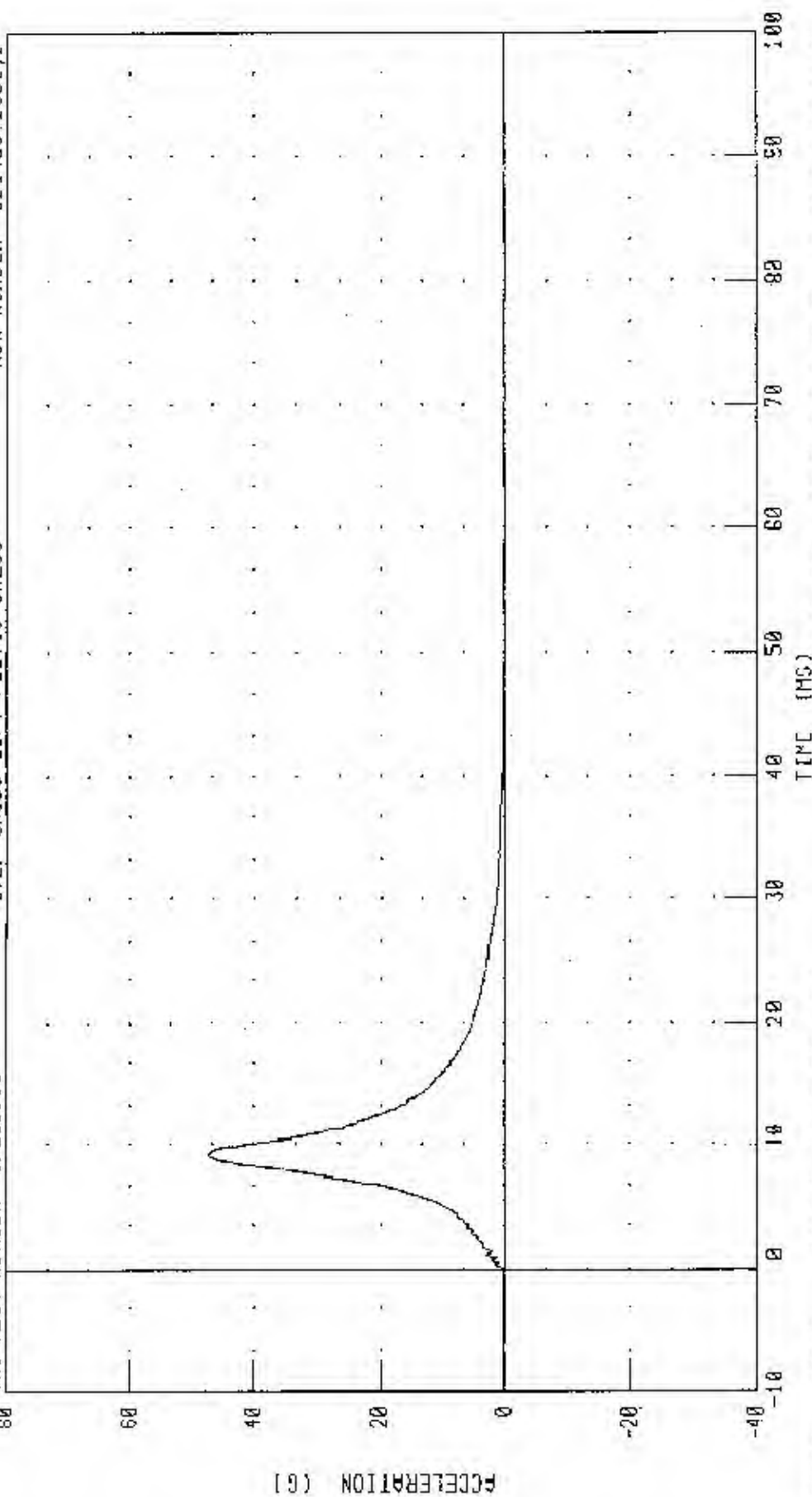
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PENDULUM DECELERATION

TRC TEST NUMBER: SPL06503

572F 5M065 LEFT PELVIS CAL03

RUN NUMBER: 021403.103L;1



PEAK DATA: 17.36 G @ 9.20 MS, -0.17 G @ 70.50 MS

CHANNEL: PENXC FILTER: CH. CLASS 1000

Calibration Test Results

Post-Test

SID: 066

Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Thorax Impact Test:	The lateral thorax passed all impact test requirements.
Thoracic Shock Absorber:	The thoracic shock absorber was not retested at this time.
Lumbar Flexion Test:	The dummy met the lumbar flexion test requirements.
Abdominal Compression Test:	The abdomen met the compression test requirements.
Pelvis Impact Test:	The lateral pelvis passed all impact test requirements.

Transportation Research Center Inc.


572F SID Dummy

External Dimensions

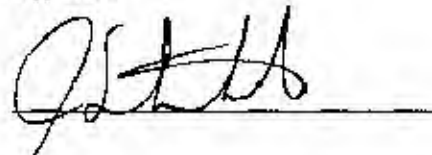
Serial No. 066 Calibration No. 03

Test Parameter	Dimension	Specification	Results	Pass
Seated Height	SH	889.0 - 909.3 mm	896 mm	Yes
Knee Pivot From Backline	KH	510.5 - 525.8 mm	521 mm	Yes
Knee Pivot From Floor	KV	490.2 - 505.5 mm	498 mm	Yes
Hip Width	HW	355.6 - 391.2 mm	388 mm	Yes
Rib Height	RH	501.7 - 520.7 mm	510 mm	Yes
Rib From Backline	RD	228.6 - 241.3 mm	236 mm	Yes
Top Rib Width From C/L	RW-1	165.1 - 180.3 mm	174 mm	Yes
Bottom Rib Width From C/L	RW-2	165.1 - 180.3 mm	174 mm	Yes
Difference Between Top & Bottom Rib Width from C/L		≤ 2.5 mm	0.0 mm	Yes

Technician



Approved



TRANSPORTATION RESEARCH CENTER INC.

LATERAL THORAX IMPACT TEST

SIDE IMPACT DUMMY

14-FEB-03

LEFT SIDE CONFIGURATION

TRC INC.

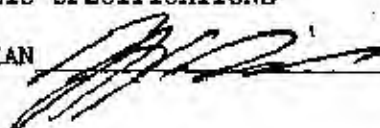
TEST NO: STL06603

572F SID SN066 L.THORAX CAL03

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	31.0 %
PENDULUM VELOCITY	4.21 - 4.33 M/S	4.29 M/S
PEAK ACCELERATION: UPPER RIB BAR	37 - 46 G	39.2 G
PEAK ACCELERATION: LOWER RIB BAR	37 - 46 G	38.9 G
PEAK ACCELERATION: LOWER THORACIC SPINE	15 - 22 G	20.9 G

TEST MEETS SPECIFICATIONS

TECHNICIAN



RUN NUMBER: 021403.0924;1

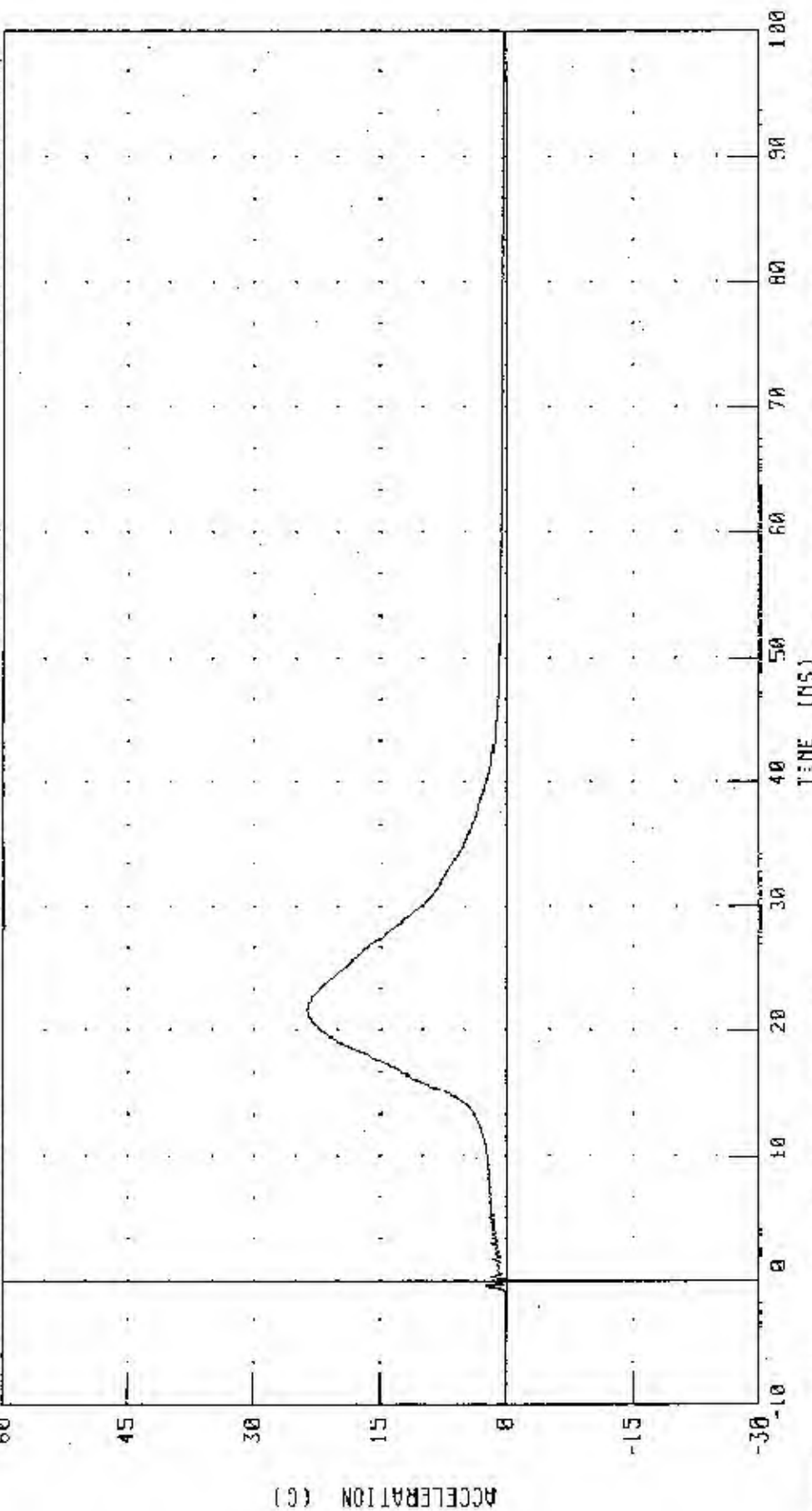
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

PENDULUM DECELERATION

TRC TEST NUMBER: STL06603

572F S10 SN066 L THORAX CAL03

RUN NUMBER: 021403.0924.1



CHANNEL PENXG FILTER: CH. CLASS 1000

PEAK DATA: 23.81 G @ 21.68 MS, 0.00 G @ -4.40 MS

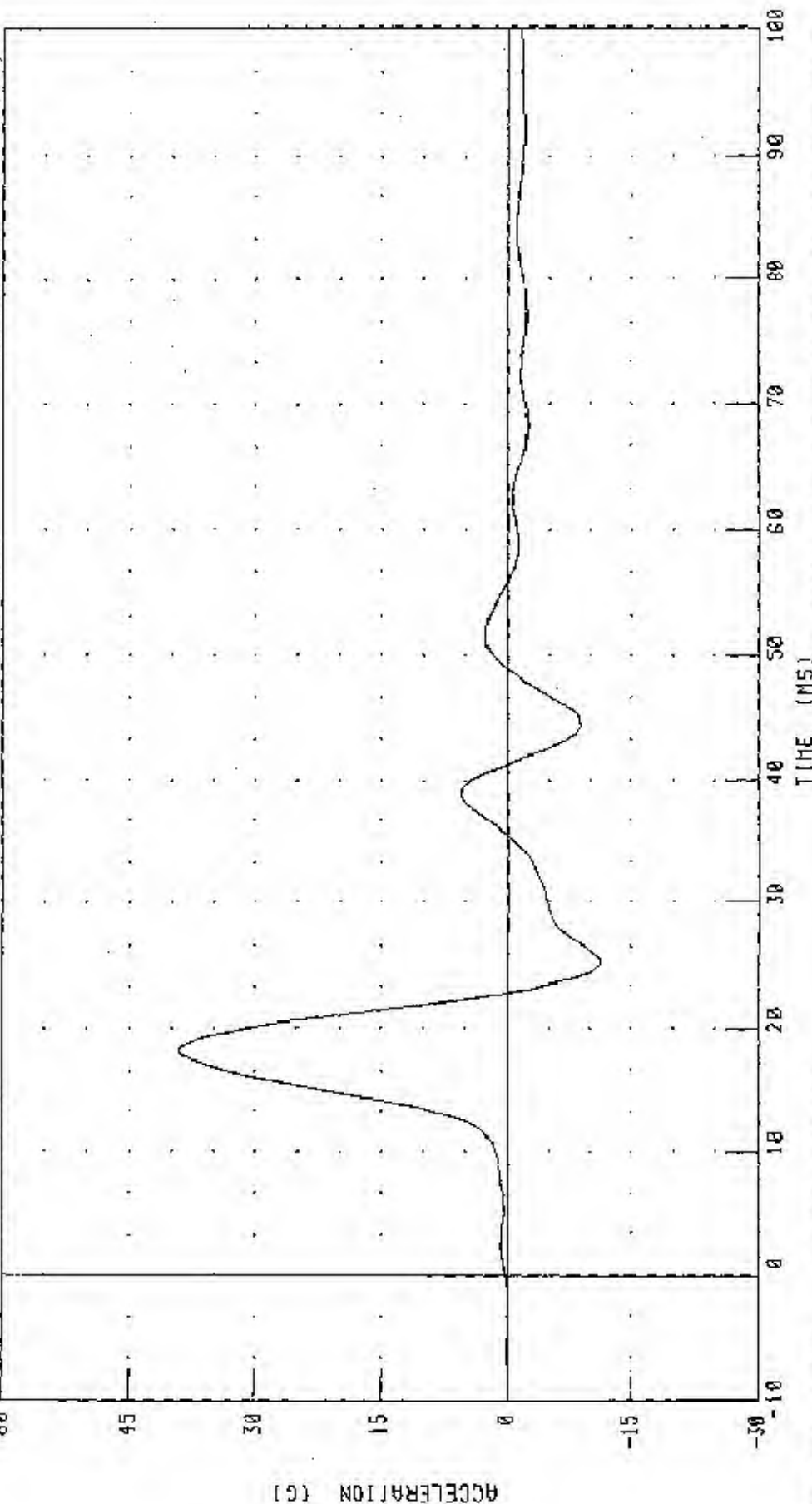
PART 572-F S.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)

LEFT UPPER RIB ACCELERATION Y AXIS

IRC TEST NUMBER: SYL066B3

572F SID SN066 L THORAX CAL03

RUN NUMBER: 021403.0924,1



CHANNEL: LURYG

FILTER: FIR 100

TIME (MS)

PEAK DATA: 39.22 G @ 18.13 MS, -11.24 G @ 25.00 MS

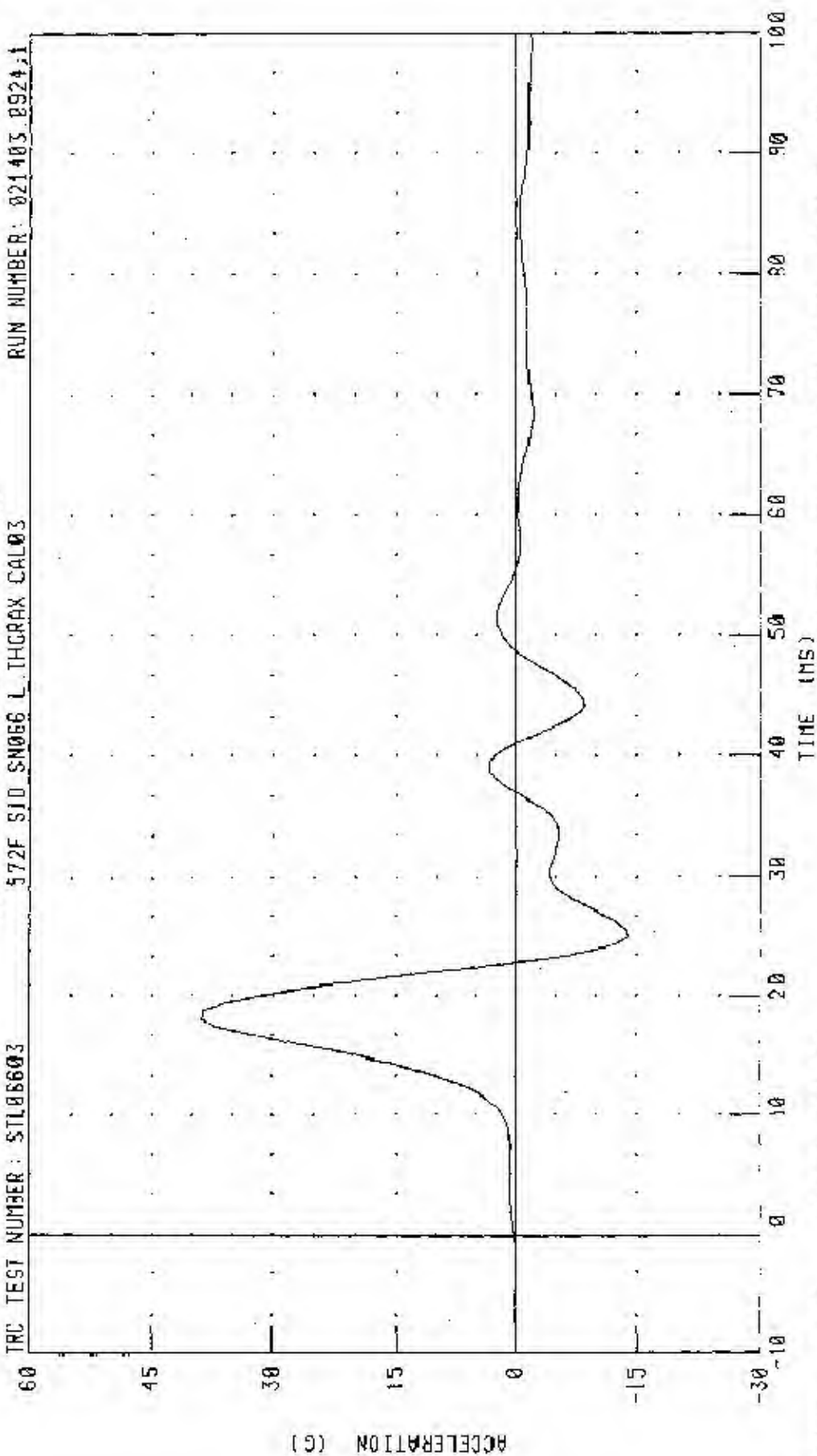
PART 572-F S10 THORAX CALIBRATION - (LEFT SIDE IMPACT)

LEFT LOWER RIB ACCELERATION Y AXIS

572F S10 SN066 L THORAX CAL03

TRC TEST NUMBER: STL06603

RUN NUMBER: 021403.8924.1



PEAK DATA: 38.89 G @ 18.13 MS, -13.89 G @ 25.00 MS

FILTER: FIR 100

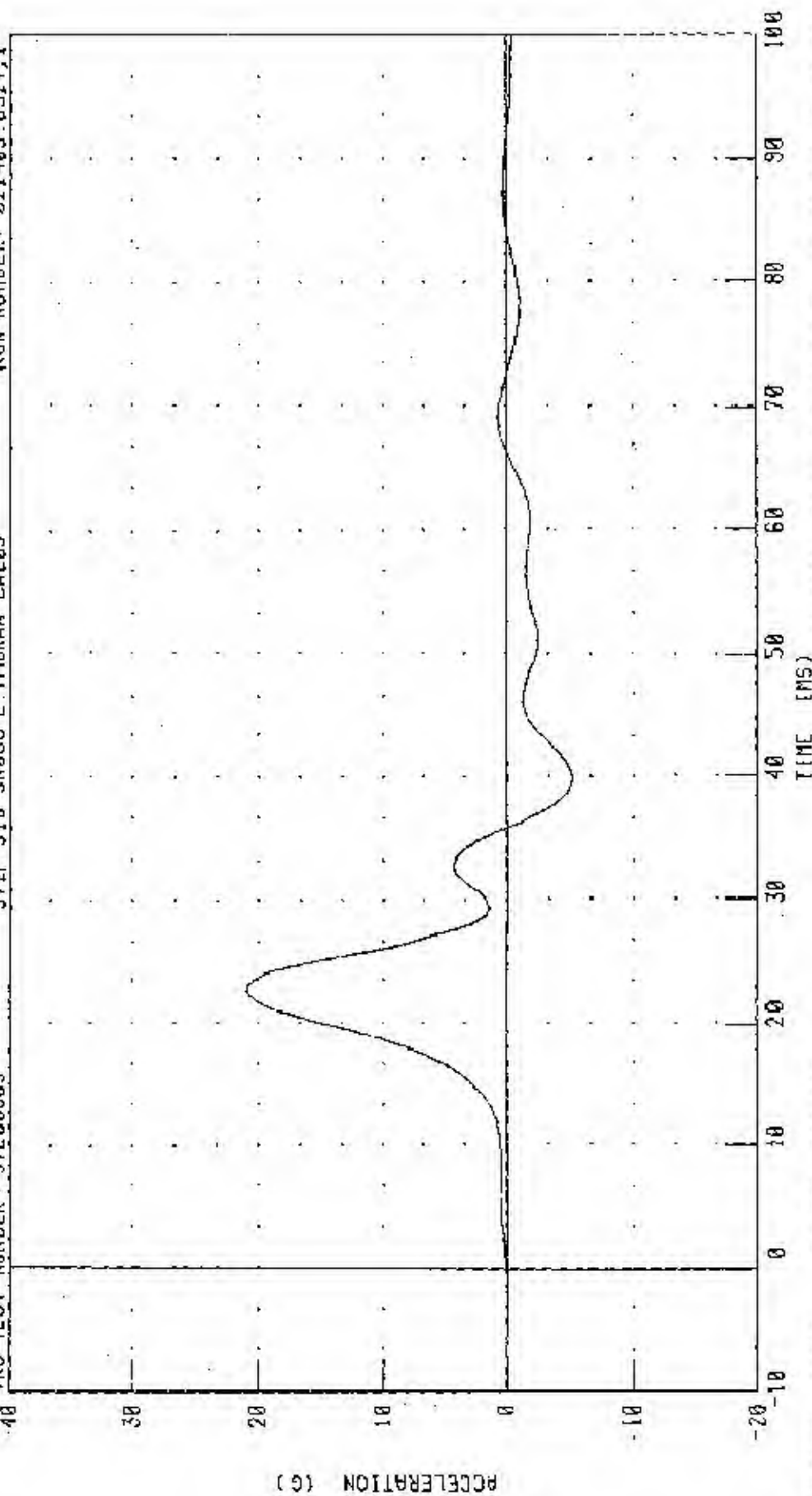
CHANNEL: LLRYC

PART 572-F G.I.D. THORAX CALIBRATION - (LEFT SIDE IMPACT)
 LOWER SPINE ACCELERATION Y AXIS

572F SID SN066 L THORAX CAL03

TRC TEST NUMBER: 51L06603

RUN NUMBER: 021403.0924;1



PEAK DATA: 20.00 G @ 22.50 MS; -5.17 G @ 40.00 MS

CHANNEL: T12VC FILTER: FIR 100

TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

SID PART 572B

CAL DATE: 14-Feb-03

TRC, INC.

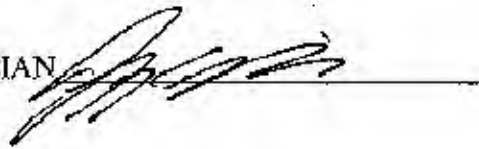
TEST NO: LF06603

572B SN 066 TORSO FLEX CAL 03

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.6 DEG. C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	30 %
FORCE AT 0 DEG. FLEXION	-27 - 27 N	0 N
FORCE AT 20 DEG OF FLEXION	98 - 151 N	124.6 N
FORCE AT 30 DEG OF FLEXION	151 - 205 N	191.3 N
FORCE AT 40 DEG OF FLEXION	205 - 258 N	244.7 N
NET RETURN ANGLE AFTER 3 MINUTES	< 12 DEG.	7 Deg

TEST MEETS SPECIFICATIONS

TECHNICIAN



Transportation Research Center Inc.

572B Abdomen Compression Test

SID Serial No. 066 Calibration No. 03 - 1

Test Date 02/14/2003

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	31 %	Yes
Displacement Rate	6.35 - 8.89 mm/s	7.1 - 7.9 mm/s	Yes
Data Within Required Corridor	Yes	Yes	Yes

Comments:

Technician



Approved



02.14.2003 13:52:30 12

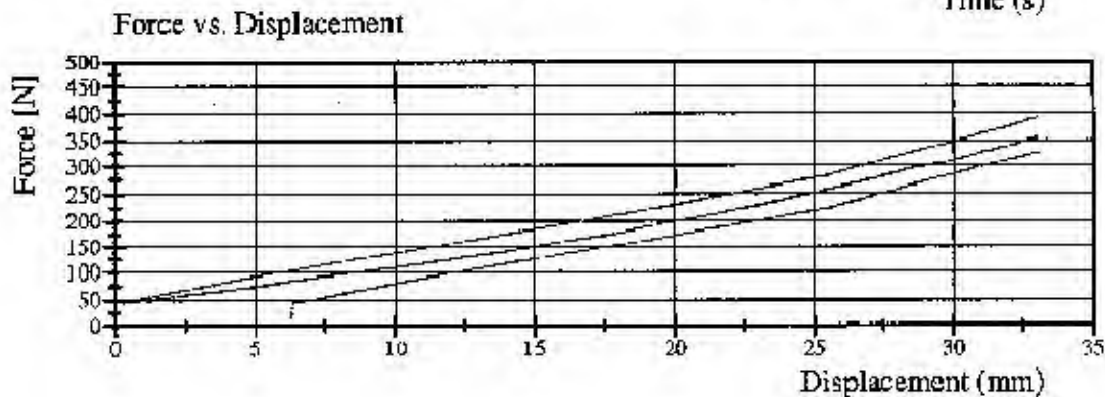
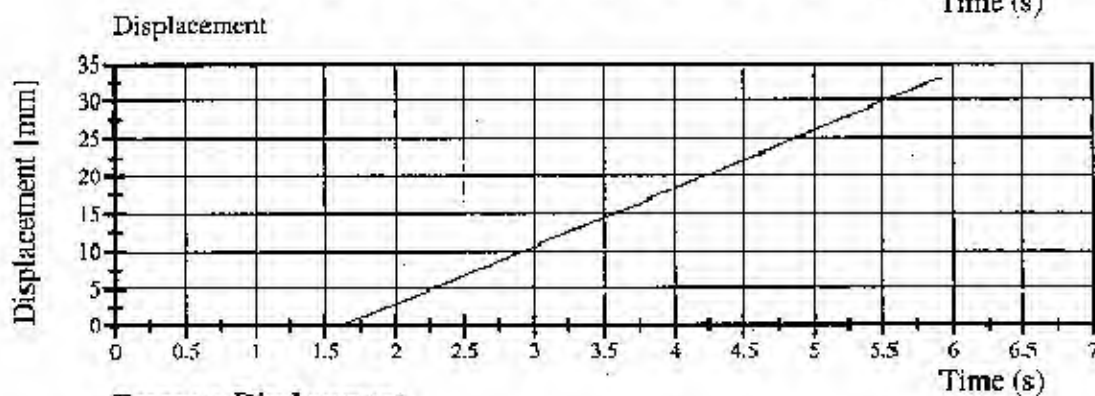
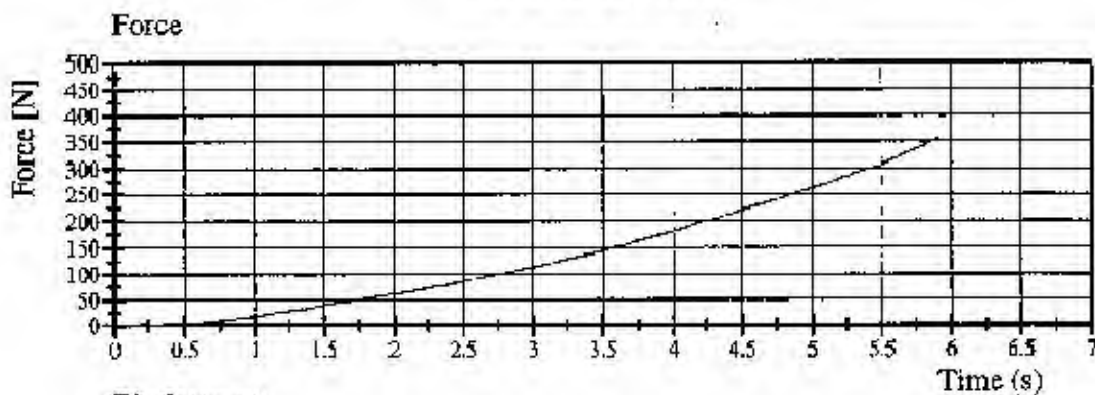
TRE

Transportation Research Center Inc.

572B Abdomen Compression Test

SID Serial No. 066 Calibration No. 03 - 1

Test Date 02/14/2003



02.14.2003 13:52:31 12



TRANSPORTATION RESEARCH CENTER INC.

LATERAL PELVIS IMPACT TEST

SIDE IMPACT DUMMY

14-FEB-03

LEFT SIDE CONFIGURATION

TRC INC.

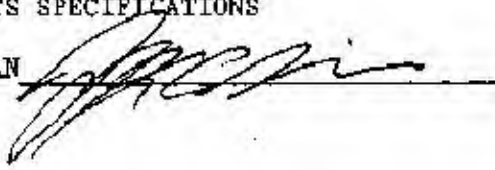
TEST NO: SFL06603

572F SNO66 LEFT PELVIS CAL03

TEST PARAMETER	SPECIFICATION (ABSOLUTE VALUE)	TEST RESULTS
TEMPERATURE	18.9 - 25.5 C	21.1 DEG. C
RELATIVE HUMIDITY	10 - 70 %	31.0 %
PENDULUM VELOCITY	4.21 - 4.33 M/S	4.29 M/S
PEAK PELVIC ACCELERATION	40 - 60 G	52.5 G
TIME ABOVE 20 G LEVEL	3 - 7 MS	6.0 MS
IS ACCELERATION CURVE UNIMODAL?	YES	YES

TEST MEETS SPECIFICATIONS

TECHNICIAN



RUN NUMBER: 021403.0929;1

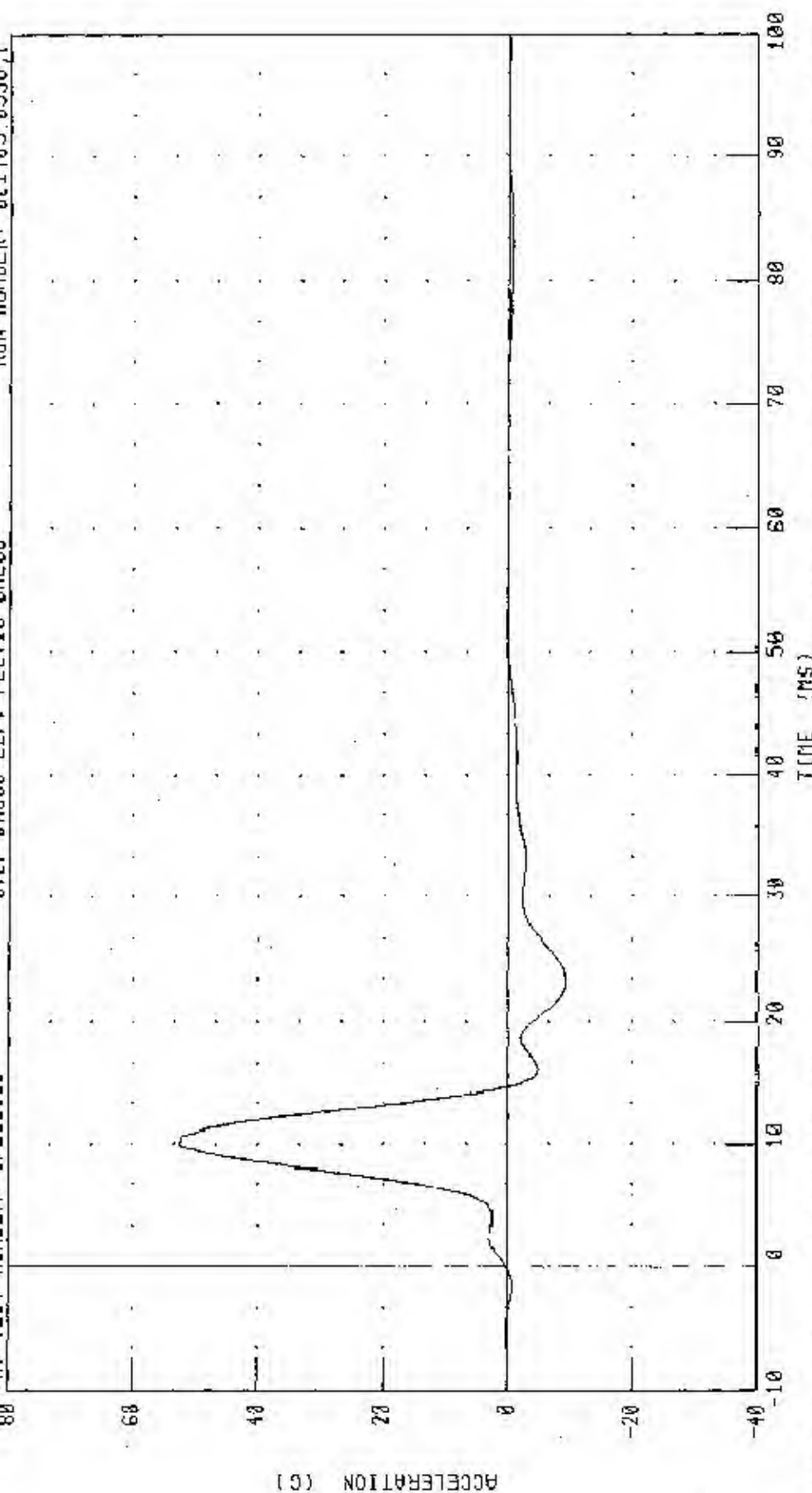
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PELVIS ACCELERATION Y AXIS

IRC TEST NUMBER: SPL06603

572F SN066 LEFT PELVIS CAL03

RUN NUMBER: 021403.0930.1



PEAK DATA: 52.49 G @ 10.00 MS, 0.40 G @ 23.13 MS

CHANNEL: PEVYG FILTER: FIR 100

ACCELERATION (G)

030212-1

C-67

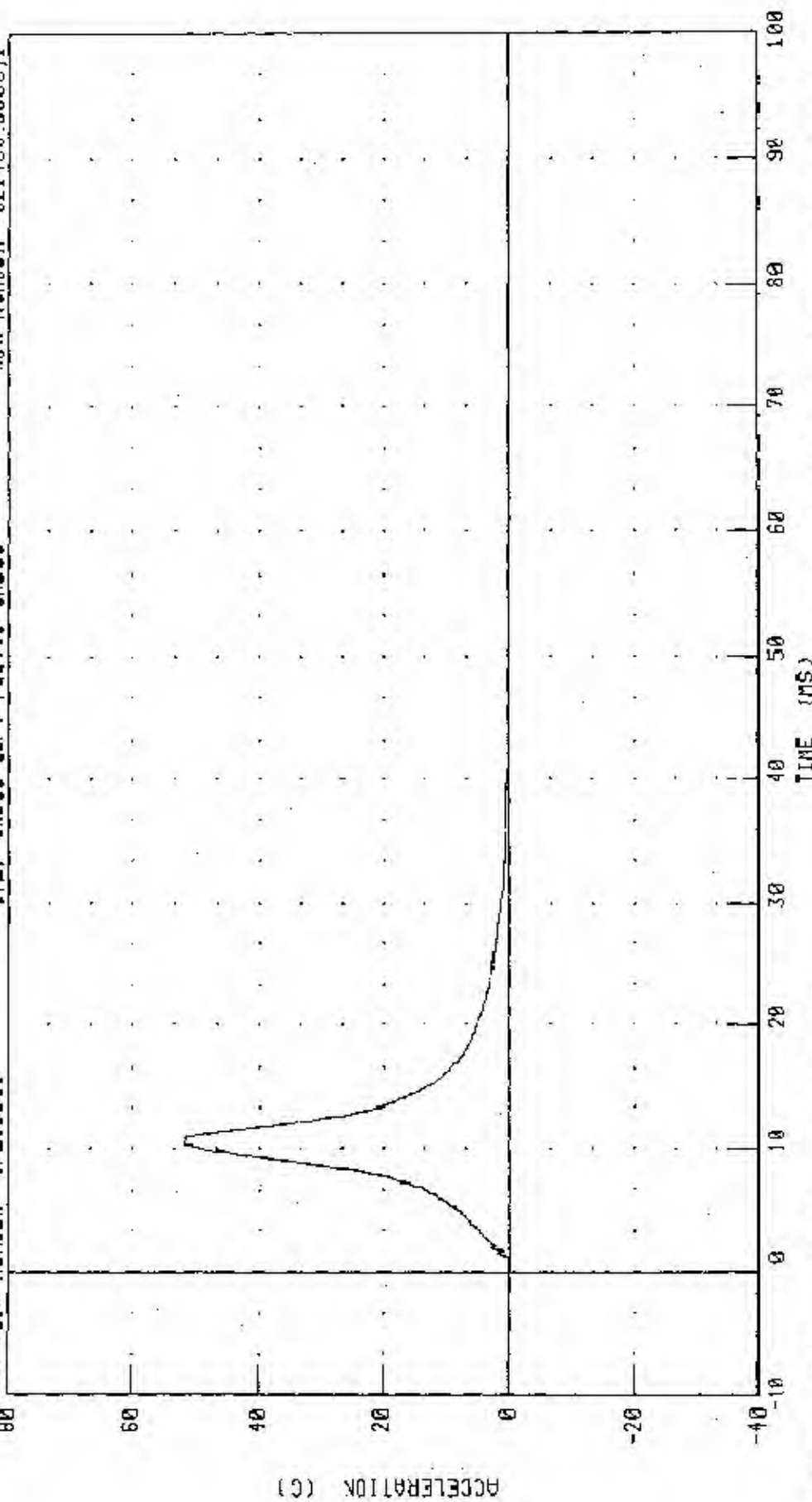
PART 572-F S.I.D. PELVIS CALIBRATION - (LEFT SIDE IMPACT)

PENDULUM DECELERATION

TRC TEST NUMBER: SPL06603

572F SN066 LEFT PELVIS CAL03

RUN NUMBER: 021403.0930.1



CHANNEL: PENXC FILTER: CH, CLASS 1000

PEAK DATA: 51.84 G @ 10.48 MS, -0.15 G @ 62.64 MS

Transportation Research Center Inc.

SID Pre-Use Inspection

Type: DOT SID S/N: 065Mfr: DentonTest Date: 02/12/03Proj./Seg. No.: 20020455/0100Test Eng.: Virginia Watters

ITEM	PRE-USE	
HEAD:		
Head Ballast Condition	X	
Accel. Mount Bolts and Cables	X	
Skull Cap Bolts	X	
Head Skin Condition	X	
Accel. Cable Exit (left or right)	(Left)	(Right) X
NECK:		
Rubber Condition and Separation from End Caps	X	
THORAX:		
Stacked Shoulder Foams and Bolts	X	
* Rib Cage Spring and Support Assembly	X	
* Rib Cage Bolts	X	
* Damper Rear Attachment Ring, Pivot Pins, and Bracket	X	
* Location and Adjustment of Chest Pot Bracket and Collars	X	
* Chest Pot Rod End Nuts and Eyebolt	X	
Arm Foam Orientation	X	
Thorax/Lumbar Spine Bolts	X	
PELVIS:		
Tightness and Alignment of H-Point Tool Insert	X	
* Hips Range of Motion and 1-2g Adjustment (before calibration only)	X	
Upper Femur Bolt Adjustment and Position	X	
Check Spine Kits (Yellow tape = Kits/No tape = No kits)	(With) X	(Without)
LEGS AND FEET:		
Femur Load Cell Bolts (40 ft/lbs)	X	
Breakaway Femur Bolts (5-6 ft/lbs)	X	
Knee Joint Function and Range of Motion	X	
Leg Skin Condition and Position	X	
Ankle Range of Motion	X	
Foot Condition	X	
OTHER:		
Cleanliness	X	
Target Position	X	
Clothes	X	
Shoes	X	
Knee & Ankle One G Joint Adjustments	X	

Inspection Completed By: John ClarridgeDate: 02/11/03

Type: DOT SID S/N: 066 Mfr: Denton Test Date: 02/12/03
 Proj./Seg. No.: 20020455/0100 Test Eng.: Virginia Walters

ITEM	PRE-USE	
HEAD:		
Head Ballast Condition		
Accel. Mount Bolts and Cables		
Skull Cap Bolts	X	
Head Skin Condition		
Accel. Cable Exit (left or right)	(Left)	(Right) X
NECK:		
Rubber Condition and Separation From End Caps	X	
THORAX:		
Stacked Shoulder Foams and Bolts	X	
* Rib Cage Spring and Support Assembly	X	
* Rib Cage Bolts	X	
* Damper Rear Attachment Ring, Pivot Pins, and Bracket	X	
* Location and Adjustment of Chest Pot Bracket and Collars	X	
* Chest Pot Rod End Nuts and Eyebolt	X	
Arm Foam Orientation	X	
Thorax/Lumbar Spine Bolts	X	
PELVIS:		
Tightness and Alignment of H-Point Tool Insert	X	
* Hips Range of Motion and 1-2g Adjustment (before calibration only)	X	
Upper Femur Bolt Adjustment and Position	X	
Check Spine Kits (Yellow tape = Kits/No tape = No kits)	(With) X	(Without)
LEGS AND FEET:	X	
Femur Load Cell Bolts (40 ft/lbs)	X	
Breakaway Femur Bolts (5-6 ft/lbs)	X	
Knee Joint Function and Range of Motion	X	
Leg Skin Condition and Position	X	
Ankle Range of Motion	X	
Foot Condition	X	
OTHER:		
Cleanliness	X	
Target Position	X	
Clothes	X	
Shoes	X	
Knee & Ankle One G Joint Adjustments	X	

Inspection Completed By: John Clarridge Date: 02/11/03

TRANSPORTATION RESEARCH CENTER INC.

SID Post-Use Inspection

S/N: DOT 065

Mfg: Denton

Test Date: 2/12/03

Proj./Seq. No.: 20020455/0100

Test Eng.: Virginia Watters

ITEM	POST-USE
HEAD: Driver	
Head Skin Condition	X
Head Ballast Condition	X
NECK:	
Rubber Condition and Separation From End Caps	X
THORAX:	
Jacket Condition	X
Arm Foam Condition	X
Damper and Chest Pot Movement and Condition	X
Rib Cage Spring and Support Assembly Condition	X
Rib Wrap Condition	X
Abdomen condition	X
Thorax/Lumbar Spine Bolts	X
Lumbar Spine Condition and Separation From End Caps	X
PELVIS:	
Iliac Crest bone	X
Flesh Condition	X
Hip Range of Motion	X
LEGS AND FEET:	
Knee Skins and Castings Condition	X
Leg Skin Condition	X
Foot Condition	X
Knee Joint Range of Motion	X
Ankle Range of Motion	X

NOTES: No damage to report.

Inspection Completed By: John Claridge

Date: 2/13/03

TRANSPORTATION RESEARCH CENTER INC.

SID Post-Use Inspection

S/N: DOT 066Mfg: DentonTest Date: 2/12/03Proj./Seg. No.: 20020455/0100Test Eng.: Virginia Watters

ITEM	POST-USE
HEAD: Passenger	
Head Skin Condition	X
Head Ballast Condition	X
NECK:	
Rubber Condition and Separation From End Caps	X
THORAX:	
Jacket Condition	X
Arm Foam Condition	X
Damper and Chest Pot Movement and Condition	X
Rib Cage Spring and Support Assembly Condition	X
Rib Wrap Condition	X
Abdomen condition	X
Thorax/Lumbar Spine Bolts	X
Lumbar Spine Condition and Separation From End Caps	X
PELVIS:	
Iliac Crest bone	X
Flesh Condition	X
Hip Range of Motion	X
LEGS AND FEET:	
Knee Skins and Castings Condition	X
Leg Skin Condition	X
Foot Condition	X
Knee Joint Range of Motion	X
Ankle Range of Motion	X

NOTES: No damage to reportInspection Completed By: John ClarridgeDate: 2/13/03

Appendix D

Test Equipment List and Calibration Information

Sign Convention
SAE J211 MAR95

Accelerometers:

+X: Forward
+Y: Rightward
+Z: Downward

Potentiometers:

+Chest longitudinal deflection: Outward
+Chest lateral deflection: Rightward
+Seat belt displacement: Outward
+Seat belt extension: Elongation
+Knee slider displacement: Distance between femur and tibia
increased (in relation to a seated
dummy)

Rotation potentiometers:

+About the X-axis: Left foot-eversion
Right foot-inversion
+About the Y-axis: Left/right foot-dorsiflexion
+About the Z-axis: Left foot-internal
Right foot-external

Load cells:

+Femur force: Tension
+Seat belt force: Tension
+Barrier force: Tension

Neck load cells:

+X force: Head pushed rearward
+Y force: Head pushed leftward
+Z force: Head pulled upward (tension on neck)
+X moment: Left ear rotating toward left shoulder
+Y moment: Chin rotating toward chest
+Z moment: Chin rotating toward left shoulder

Tibia load cells:

+X force: Ankle forward, knee rearward
+Y force: Ankle rightward, knee leftward
+Z force: Tension
+X moment: Bottom of tibia moving leftward
+Y moment: Bottom of tibia moving rearward

Sign Convention, Cont'd.
SAE J211 MAR95

Lumbar load cells:

+X force:	Chest rearward, pelvis forward
-Y force:	Chest leftward, pelvis rightward
+Z force:	Chest upward, pelvis downward
+X moment:	Left shoulder toward left hip
+Y moment:	Sternum toward front of legs
+Z moment:	Right shoulder forward, left shoulder rearward

Frequency Response Classes
SAE J211 MAR95

<u>Typical Test Measurements</u>	<u>Channel Class</u>
Vehicle Structural Accelerations for use in:	
Total vehicle comparison	60
Collision simulation input	60
Component analysis	600
Integration for velocity or displacement	180
Barrier Face Forces	60
Belt Restraint System Loads	60
Anthropomorphic Test Device	
Head accelerations (linear and angular)	1000
Neck	
Forces	1000
Moments	600
Thorax	
Spine accelerations	180
Rib accelerations	1000
Sternum accelerations	1000
Deflections	600
Lumbar	
Forces	1000
Moments	1000
Pelvis	
Accelerations	1000
Forces	1000
Moments	1000
Femur/Knee/Tibia/Ankle	
Forces	600
Moments	600
Displacements	180
Sled Accelerations	60
Steering Column Loads	600
Head form Accelerations	1000

The direction column on the following sheets describes the transducer output as mounted and wired in the test location. The polarity column indicates whether a polarity change occurred during data acquisition to conform to J211 MAR95. See Report Sign Convention sheet for description of data output as presented in the report; occasionally channels have been adjusted in post-acquisition processing to conform to J211 MAR95.

2/12/2003 10:52:49 AM

Channel Report

Name of Test 030212-1

Name of DAU DAU6

System MINIDAU

Chan.#	Sensor #	Mnemonic	Description	Dir.	Range	Pol. Cal	Group	Mfg.	Model
6001	P25322	RCGXG1	MDB CENTER OF GRAVITY	FWD	597.57236 S	+ 1/22/2003	OK	Endevco	7264C-2K-2-180
6002	P24561	BCGYG1	MDB CENTER OF GRAVITY	RT	596.73659 E	+ 11/22/2002	OK	Endevco	7264C-2K-2-180
6003	P24531	BCGZG1	MDB CENTER OF GRAVITY	UP	593.27238 E	- 11/21/2002	OK	Endevco	7264C-2K-2-180
6007	P23929	LRRXG1	MDB LT RR X-AXIS	FWD	594.45024 E	+ 9/4/2002	OK	Endevco	7264C-2K-2-180
6008	P24590	LRRYG1	MDB LT RR Y-AXIS	LT	601.61684 E	- 11/21/2002	OK	Endevco	7264C-2K-2-180

Channel Report

2/12/2003 10:52:49 AM

Name of Test		030212-1	System		MINIDAU	Name of DAU		DAU7			
Chan.#	Sensor #	Mnemonic	Description	Dtr.	Range	Pol. Cal.	Group	Mfg.	Model		
7001	P25068	LURYG1	Left Upper Rib Y	Rgt	804.05798	+	065n	Endevco	7264C-2K-2-180		
7002	P25067	LURYR1	Left Upper Rib Red Y	Rgt	808.88509	+	065n	Endevco	7264C-2K-2-180		
7003	P25389	LJRYG1	Left Lower Rib Y	Rgt	799.52528	+	065n	Endevco	7264C-2K-2-180		
7004	P25395	LLRYR1	Left Lower Rib Red Y	Rgt	788.95463	+	065n	Endevco	7264C-2K-2-180		
7005	P14826	T12YG1	Lower Spine Y	Lft	401.80813	-	065n	Endevco	7264C-2K-2-180		
7006	P25069	T12YR1	Lower Spine Red Y	Lft	398.15851	-	065n	Endevco	7264C-2K-2-180		
7007	P25397	PEVYG1	Pelvis Accel Y	Lft	400.34404	-	065n	Endevco	7264C-2K-2-180		
7008	P25061	PEVYR1	Pelvis Accel Red Y	Lft	401.07161	-	065n	Endevco	7264C-2K-2-180		
7009	P24311	LURYG4	Left Upper Rib Y	Rgt	799.87501	+	066n	Endevco	7264C-2K-2-180		
7010	P21652	LURYR4	Left Upper Rib Red Y	Rgt	803.23805	+	066n	Endevco	7264C-2K-2-180		
7011	P24308	LJRYG4	Left Lower Rib Y	Rgt	803.12465	+	066n	Endevco	7264C-2K-2-180		
7012	P24827	LLRYR4	Left Lower Rib Red Y	Rgt	801.56555	+	066n	Endevco	7264C-2K-2-180		
7013	P21635	T12YG4	Lower Spine Y	Lft	401.99742	-	066n	Endevco	7264C-2K-2-180		
7014	P24564	T12YR4	Lower Spine Red Y	Lft	401.58862	-	066n	Endevco	7264C-2K-2-180		
7015	P24393	PEVYG4	Pelvis Accel Y	Lft	401.25864	-	066n	Endevco	7264C-2K-2-180		
7016	P24559	PEVYR4	Pelvis Accel Red Y	Lft	402.26272	-	066n	Endevco	7264C-2K-2-180		
7017	P25265	RFSXG1	RGT SIDE SILL FRNT ST X	RR	401.31367	-	-1	Endevco	7264C-2K-2-180		
7018	P19123	RFSYG1	RGT SIDE SILL FRNT ST Y	Lt	1006.1706	-	-1	Endevco	7264C-2K-2-180		
7019	P24566	RFSZG1	RGT SIDE SILL FRNT ST Z	UP	401.33254	-	-1	Endevco	7264C-2K-2-180		
7020	P25495	RRSXG1	RGT SIDE SILL RR ST X	RR	400.45363	-	-1	Endevco	7264C-2K-2-180		
7021	P24444	RRSYG1	RGT SIDE SILL RR ST Y	Lt	991.30870	-	-1	Endevco	7264C-2K-2-180		
7022	P24480	RRSZG1	RGT SIDE SILL RR ST Z	UP	401.51824	-	-1	Endevco	7264C-2K-2-180		
7023	P24592	RDKXG1	RR FLR PAN ABV AXLE X	FWD	1012.3378	+	-1	Endevco	7264C-2K-2-180		
7024	P24716	RDKYG1	RR FLR PAN ABV AXLE Y	RT	1012.9787	+	-1	Endevco	7264C-2K-2-180		
7025	P24717	RDKZG1	RR FLR PAN ABV AXLE Z	UP	1004.9264	+	-1	Endevco	7264C-2K-2-180		
7026	P24543	LRSYG1	LFT SIDE SILL RR ST Y	RT	984.12332	+	-1	Endevco	7264C-2K-2-180		
7027	P25311	LFSYG1	LFT SIDE SILL FRNT ST Y	RT	1021.1408	+	-1	Endevco	7264C-2K-2-180		
7028	P25393	LPCYG1	LFT FRNT DOOR CTRLN Y	RT	1502.3474	+	-1	Endevco	7264C-2K-2-180		
7029	P24580	RRTYG1	RGT RR OCP COMP Y	RT	1493.9309	+	-1	Endevco	7264C-2K-2-180		
7030	P25405	LPMYG1	LFT FRNT DOOR MIDRR Y	RT	1511.2160	+	-1	Endevco	7264C-2K-2-180		
7031	P25056	LPUYG1	LFT FRNT DOOR UPPER C/L	RT	1530.9173	+	-1	Endevco	7264C-2K-2-180		
7032	P25303	LRMYG1	LFT RR DORR MIDREAR Y	RT	1483.0263	+	-1	Endevco	7264C-2K-2-180		

Channel Report

2/12/2003 10:52:49 AM

Name of Test 030212-1

System MINIDAU

Name of DAU DAU8

Chan. #	Sensor #	Mnemonic	Description	Dir.	Range	Pol.	Cal.	Group	Mfg.	Model
8001	P24434	LRUYG1	LT RR DR UPPER CL Y	RT	1573.8095 g	+	11/22/2002	OK	-	Endevco 7264C-2K-2-180
8002	318104	LLBYG1	LFT LOWER B-POST Y	RT	1508.4111 g	+	11/5/2002	OK	-	Endevco 7264-2000T
8003	P24515	LUBYG1	LFT MID B-POST Y	RT	1485.7375 g	+	11/21/2002	OK	-	Endevco 7264C-2K-2-180
8004	P25321	LLAYG1	LFT LOWER A-POST Y	LT	1457.7757 g	-	1/22/2003	OK	-	Endevco 7264C-2K-2-180
8005	P24389	LUAYG1	LFT MID A-POST Y	LT	1475.8445 g	-	11/21/2002	OK	-	Endevco 7264C-2K-2-180
8006	J20025	LFTYG1	LFT FRNT ST TRK Y	RT	1479.4267 g	+	12/3/2002	OK	-	Endevco 7264-2000TZ
8007	P24648	LRTYG1	LFT RR ST TR Y	LT	1467.0066 g	-	11/20/2002	OK	-	Endevco 7264C-2K-2-180
8008	P25329	VCGXG1	VEH C/G X	FWD	995.95393 g	+	1/22/2003	OK	-	Endevco 7264C-2K-2-180
8009	P24652	VCGYG1	VEH C/G Y	LT	995.21828 g	-	11/20/2002	OK	-	Endevco 7264C-2K-2-180
8010	P23848	VCGZG1	VEH C/G Z	UP	1000.8601 g	-	8/16/2002	OK	-	Endevco 7264C-2K-2-180

Digital and System Channel Report

2003-02-12 10:52:35

Name of Test 030212-1
 enable Channel
 Yes 6504
 Short Name DIG6
 System MINIDAU
 Name of DAU DAU6
 Data File DAT66501
 Module Type KM3710 Controller
 description

bit position bit short long
 MSB = bit 15 1 MDBRI
 bit 14 1 MDBLI
 bit 13 0
 bit 12 0
 bit 11 0
 bit 10 0
 bit 09 0
 bit 08 0
 bit 07 0
 bit 06 0
 bit 05 0
 bit 04 0
 bit 03 0
 bit 02 0
 bit 01 0
 LSB = bit 00 0
 MDB RT SIDE CONTACT SWITCH
 MDB LT SIDE CONTACT SWITCH

Dummy 065n Type SID Description Name Model Manufacturer Sens./mV/V/U Fullscale Calibrate Pos Output Flip

JHEDXG	Head Accel X	7264-2000TZ	J26885	Endevco	0.02369	g	2000	7/1/02	Rwd	1
JHEDYG	Head Accel Y	7264-2000TZ	J26884	Endevco	0.02404	g	2000	7/1/02	Lft	1
JHEDZG	Head Accel Z	7264-2000TZ	J27950	Endevco	0.02593	g	2000	7/1/02	Up	1
JNEKXF	Neck Force X	1716A	1716A-858-FX	Denton	0.000191628	N	8896.4	1/1/03	Rd Fd,Cst Rr	1
JNEKYF	Neck Force Y	1716A	1716A-858-FY	Denton	0.000184704	N	8896.4	1/1/03	Rd Lf,Cst Rr	0
JNEKZF	Neck Force Z	1716A	1716A-858-FZ	Denton	0.000096421	N	13344.6	1/1/03	Rd Up,Cst Dh	0
JNEKXM	Neck Moment X	1716A	1716A-858-MX	Denton	0.006005664	N-m	282.5	1/1/03	Rt Hrt to Rt Shld	1
JNEKYM	Neck Moment Y	1716A	1716A-858-MY	Denton	0.005933097	N-m	282.5	1/1/03	Clm to Strum	0
JNEKZM	Neck Moment Z	1716A	1716A-858-MZ	Denton	0.008454159	N-m	282.5	1/1/03	Clm to Lt Shld	0
LURYG	Left Upper Rib Y	7264C-2K-2-18	P25068	Endevco	0.01721	g	2000	12/19/02	Rgt	0
LURYR	Left Upper Rib Red Y	7264C-2K-2-18	P25067	Endevco	0.01623	g	2000	12/19/02	Rgt	0
LLRYG	Left Lower Rib Y	7264C-2K-2-18	P25389	Endevco	0.01642	g	2000	12/19/02	Rgt	0
LLRYR	Left Lower Rib Red Y	7264C-2K-2-18	P25395	Endevco	0.02028	g	2000	12/19/02	Rgt	0
TI2YG	Lower Spine Y	7264C-2K-2-18	P14826	Endevco	0.01991	g	2000	12/19/02	Lft	1
TI2YR	Lower Spine Red Y	7264C-2K-2-18	P25069	Endevco	0.01692	g	2000	12/19/02	Lft	1
PEVYG	Pelvis Accel Y	7264C-2K-2-18	P25397	Endevco	0.01827	g	2000	12/19/02	Lft	1
PEVYR	Pelvis Accel Red Y	7264C-2K-2-18	P25061	Endevco	0.01798	g	2000	12/19/02	Lft	1

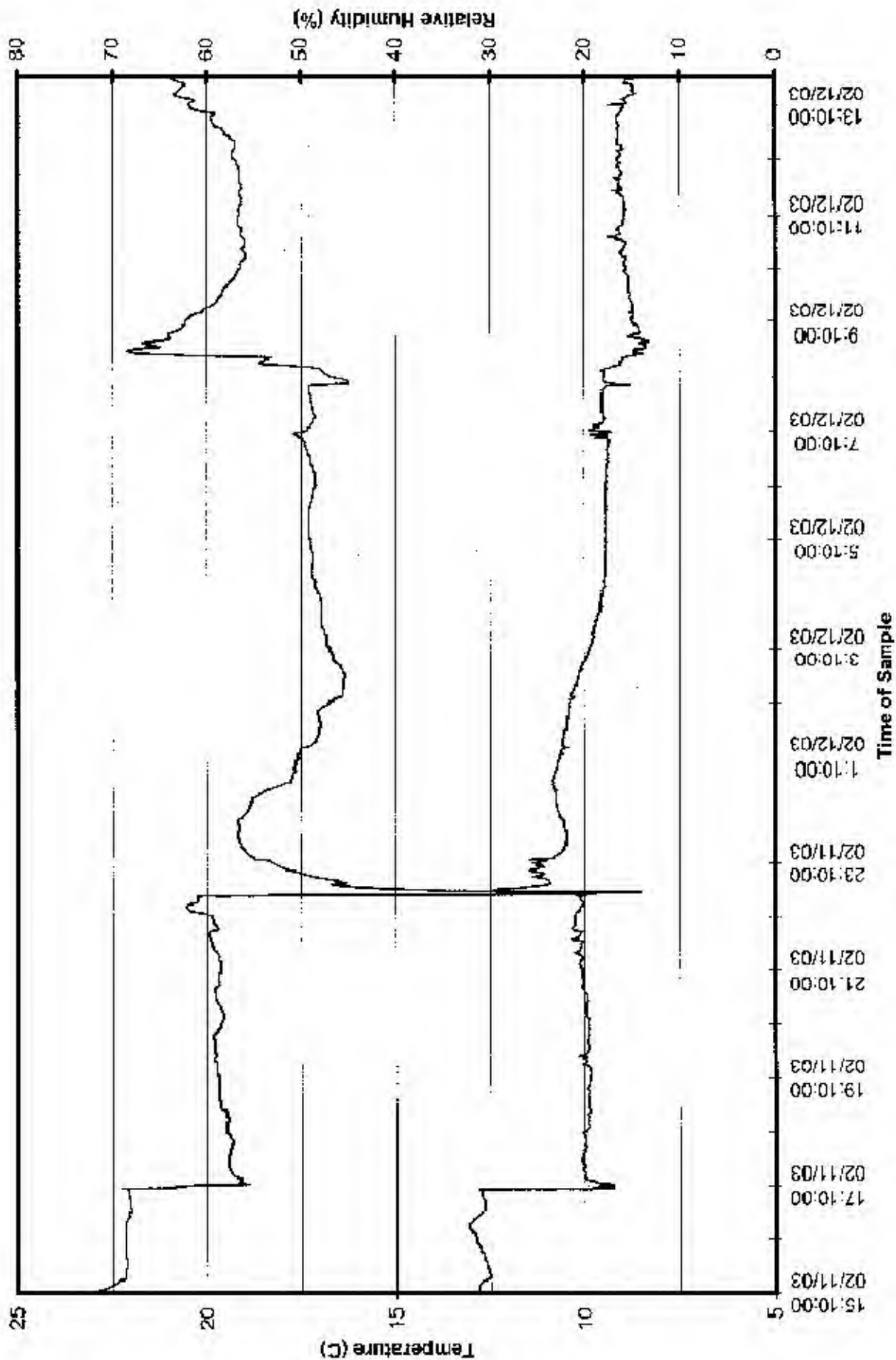
| indicates channel not used or not installed in dummy for this test.

NHTSA - 066n SHU-LEFT IMP. CONFIG. CAL DUE 5-21-03(DKS 2-4-03)J211

Dummy	066n	Type	SID	Description	Name	Model	Manufacturer	Sens/Jm/V/Y/U	Fullscale	Caldate	Pos Output	Fltp
IHEDXG	Head Accel X				J28754	7264-2000TZ	Endevco	0.02834 g	2000	7/10/02	Rwd	1
IHEDYG	Head Accel Y				J27345	7264-2000TZ	Endevco	0.02781 g	2000	7/11/02	Lft	1
IHEDZG	Head Accel Z				J27116	7264-2000TZ	Endevco	0.02547 g	2000	7/10/02	Hip	1
INEKXP	Neck Force X				1716A	1716A-858-FX	Denton	0.000191628 N	8896.4	1/17/03	Hd Fd, Cst Rr	1
INEKYP	Neck Force Y				1716A	1716A-858-FY	Denton	0.000184704 N	8896.4	1/17/03	Hd L4, Cst Rr	0
INEKZF	Neck Force Z				1716A	1716A-858-FZ	Denton	0.000096421 N	13344.6	1/17/03	Hd Up, Cst Dm	0
INEKXM	Neck Moment X				1716A	1716A-858-MX	Denton	0.000005664 Nm	282.5	1/17/03	Rt Ear to Rt Shld	1
INEKYM	Neck Moment Y				1716A	1716A-858-MY	Denton	0.003933097 Nm	282.5	1/17/03	Chn to Shm	0
INEKZM	Neck Moment Z				1716A	1716A-858-MZ	Denton	0.008454159 Nm	282.5	1/17/03	Chn to Lt Shld	0
LURYG	Left Upper Rib Y				7264C-2K-2-18	P24511	Endevco	0.0173 g	2000	11/21/02	Rgt	0
LURYR	Left Upper Rib Red Y				7264C-2K-2-18	P21652	Endevco	0.02198 g	2000	11/21/02	Rgt	0
LLRYG	Left Lower Rib Y				7264C-2K-2-18	P24508	Endevco	0.01723 g	2000	11/21/02	Rgt	0
LLRYR	Left Lower Rib Red Y				7264C-2K-2-18	P24627	Endevco	0.01825 g	2000	11/21/02	Rgt	0
T12YG	Lower Spine Y				7264C-2K-2-18	P21635	Endevco	0.01873 g	2000	11/21/02	Lft	1
T12YR	Lower Spine Red Y				7264C-2K-2-18	P24564	Endevco	0.01875 g	2000	11/21/02	Lft	1
PEVYG	Pelvis Accel Y				7264C-2K-2-18	P24393	Endevco	0.01963 g	2000	11/21/02	Lft	1
PEVYR	Pelvis Accel Red Y				7264C-2K-2-18	P24559	Endevco	0.0172 g	2000	11/21/02	Lft	1

! indicates channel not used or not installed in dummy for this test.

FMVSS 214 Side Impact Protection C35402 / 030212-1





SIDE IMPACTOR BARRIER CERTIFICATION

Date: July 11, 2002

To: Transportation Research
Ship & Rec Bldg 50
10820 St. Route 347
East Liberty, OH 43319-0367

PURCHASE ORDER INFORMATION

Customer P.O. Number: 018767
Work Order Number: 13552
Quantity: 05 pieces

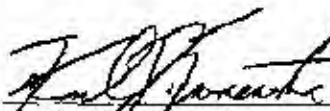
CORE INFORMATION


Core Type: PAMG-3/8-1.6-001-P-50S2-T
Measured Cell Size: 0.375 inches
Measured Density: 1.6 pcf

Unit Numbers:

- 050C0602 - 01 pc.
- 050A0602 - 01 pc.
- 049A0602 - 01 pc.
- 048C0602 - 01 pc.
- 035C0602 - 01 pc.

This is to certify that the aluminum honeycomb core supplied, under the unit numbers provided, meets the crush requirements of 45 psi +/- 2.5 psi as per DWG# DSL-1285.

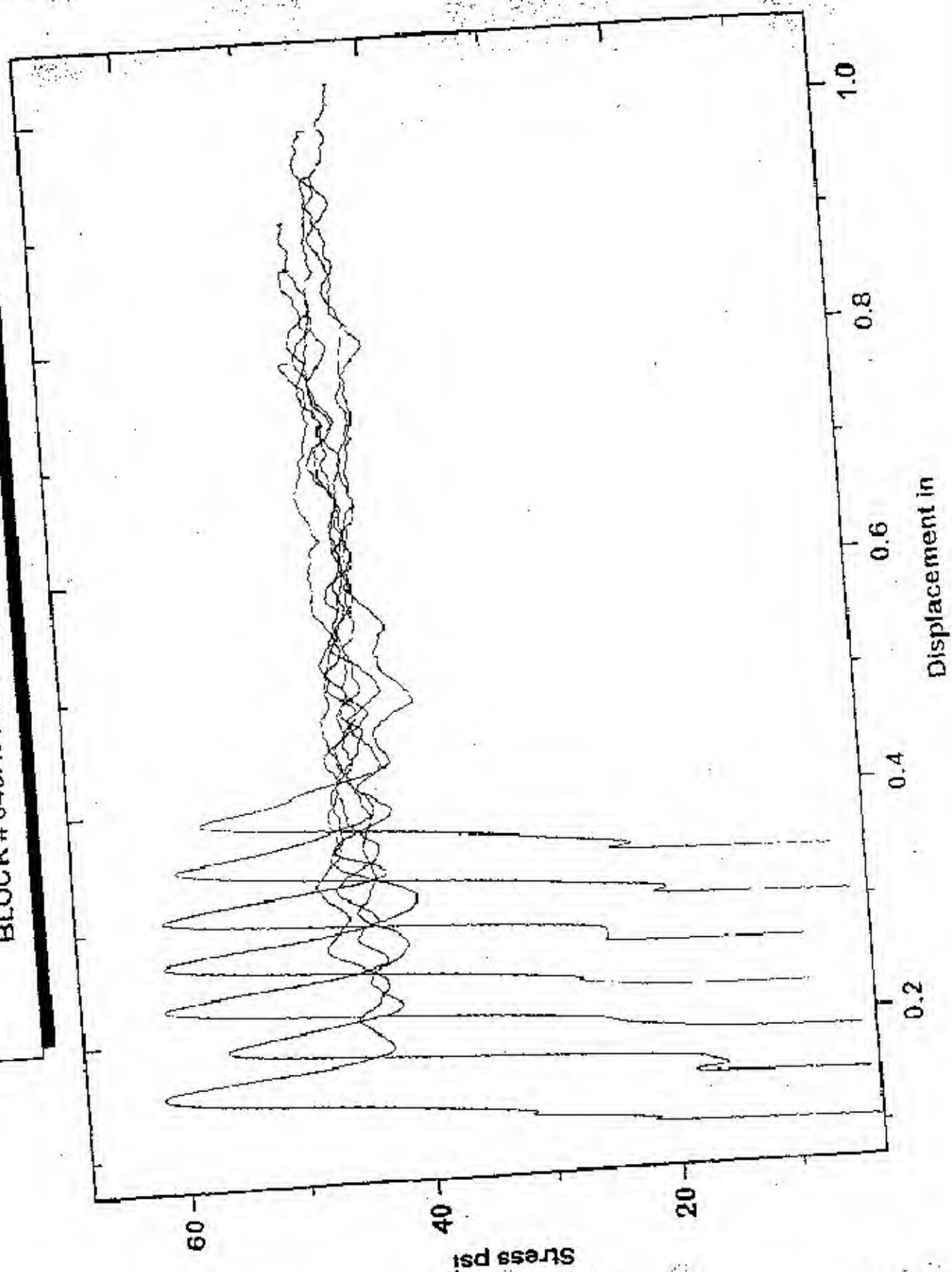

Quality Control Representative
Karl D. Zwaanstra



Crush Data**45 psi +/- 2.5 psi per DWG # DSL-1285****Block Number: 049A0602**

<u>Specimen Number</u>	<u>Zone 1</u>	<u>Zone 2</u>	<u>Zone 3</u>
1	46.16	46.20	46.90
2	45.19	44.51	45.39
3	45.18	44.59	45.82
4	44.12	45.03	46.00
5	44.61	44.57	45.10
6	43.71	42.95	43.74
7	43.36	43.10	44.13

BLOCK # 049A0602 Sample ID: IN224645





SIDE IMPACTOR BARRIER CERTIFICATION

Date: July 11, 2002

To: Transportation Research
Ship & Rec Bldg 50
10820 St. Route 347
East Liberty, OH 43319-0367

PURCHASE ORDER INFORMATION

Customer P.O. Number: 018767
Work Order Number: 13552
Quantity: 05 pieces

CORE INFORMATION

Core Type: PCGA-1/4-5.2-P-3003-T
Measured Cell Size: 0.250 inches
Measured Density: 5.2 pcf

Unit Numbers: 035A0602 - 03 pcs.
058B0502 - 02 pcs.

This is to certify that the aluminum honeycomb core supplied, under the unit numbers provided, meets the crush requirements of 232 - 250 psi as per DWG# DSL-1285.


Quality Control Representative
Karl D. Zwaanstra





PLAScore

Crush Data

232 - 250 psi per DWG # DSL-1285

Block Number: 058B0502

<u>Specimen Number</u>	<u>Zone 1</u>	<u>Zone 2</u>	<u>Zone 3</u>
1	234.88	233.03	238.26
2	245.89	246.74	234.83
3	244.45	242.80	244.84
4	233.66	232.58	232.66
5	241.14	241.30	238.97
6	241.47	241.27	241.95
7	241.53	238.17	235.74

BLOCK # 058B0502 Sample ID: IN224430

